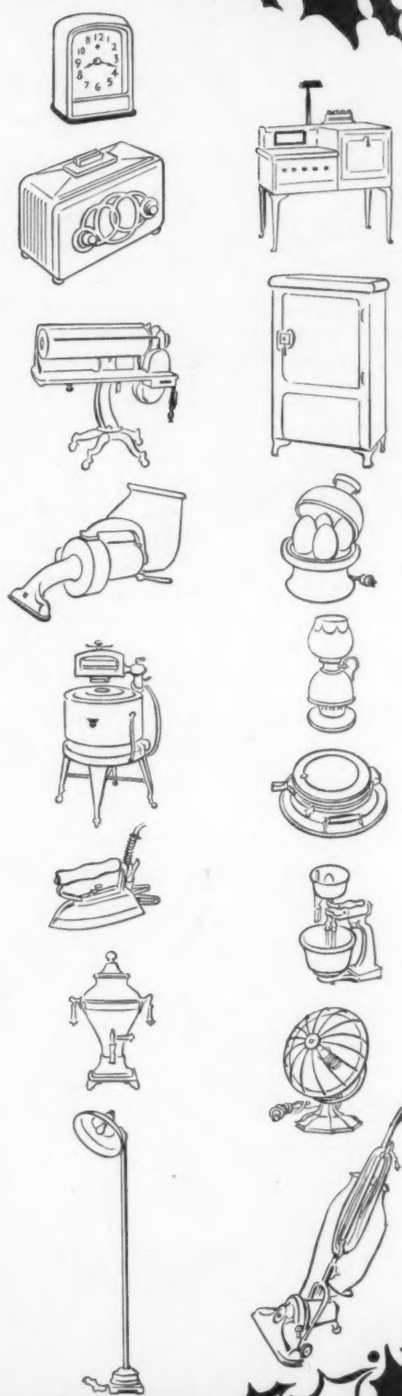
November, 1933
25 Cents Per Copy
McGraw-Hill Co. of California

# ELECTRICAL WEST

## *Better* Light
## *Better* Sight
## Better *Selling*

*Let's make it a real* **RECOVERY CHRISTMAS**



Your customers' buying power is growing steadily. They will *demand* more variety . . . better *quality* . . . up-to-the-minute improvements. They'll be in the market for an all-electric Christmas—*if you can give it to them.* ¶ Don't be caught without adequate stocks. Stock a complete line of quality household appliances from Graybar. Graybar brings you a wide variety of products to choose from, including appliances that are particularly suitable as gifts. Graybar brings, too, a reputation for *quality* that has been growing 64 years.

GraybaR

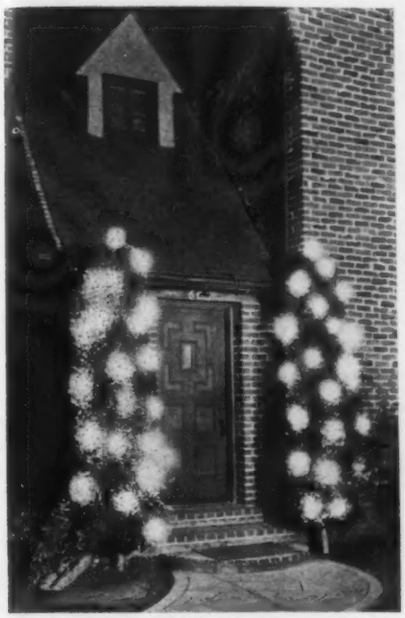
OFFICES IN 73 PRINCIPAL CITIES. EXECUTIVE OFFICES: GRAYBAR BLDG., N. Y.



ELECTRICAL WEST (with which is consolidated The Journal of Electricity), November, 1933, Vol. 71, No. 5. Published monthly. by the McGraw-Hill Company of California, 883 Mission St., San Francisco, Calif. Entered as second class matter at the post office at San Francisco under the Act of March 3, 1879. Printed in U.S.A. Subscription rate in U.S. and U.S. possessions, $2 per year; Canada, $2.50 including duty; all other countries $3 gold (thirteen shillings). Single copy, 25. Copyright 1933. McGraw-Hill Company of California.

the New ELECTRICAL WEST

for November, 1933
Volume 71—No. 5



*Time to start the entire West on its triumphant use of tiny electric lights to glorify and decorate the Christmas season. Organize your town now, so that the entire month of December will find it brilliant, cheery, hospitable, and light hearted again*

▼

### *Cookery Competition*

A New England industry grown from infant to lusty manhood during three years of depression is quietly making inquiries of market possibilities in the Pacific Coast states. It spells more competition for electric cookery from the oil companies, which have been having mediocre success with bottled gas. It is the range oil burner—modern development to replace the coal oil stove in many rural kitchens.

More than 200,000 installations of this equipment have been made in New England. Range manufacturers are producing ranges especially adapted for the burner. High efficiencies and low operating cost are claimed for it. Nor is cooking the only domestic service to which it may be applied. Manual and automatic water heaters are available; also small central heating plants.

Oil companies are definitely interested, as are distributors who see in the new equipment an opportunity for a new market. If not previously forewarned, the electrical industry may take this as admonition. Incidentally a full discussion of the subject may be found in "Oil and Gas Journal" for May 25, 1933.

# *The Editors Think Out Loud*

LETTERS bring in many compliments on the October issue but none bring the editors so much satisfaction as those indicating that the book will be put to work to make business, this holiday season. After all, the purpose was not to create a mere thing of beauty, but a convincing selling tool. Tools are no good as ornaments, they must be used to be appreciated. One of the West's best display and advertising men, Frank Bevan, creator of the syndicated window display system of Pacific Gas and Electric Co., scribbled this little note that spells genuine usefulness of the October Electrical West:

"Boy you sure furnished this 'window trimmer' with a whole store house of things to dramatize 'under glass'. So don't be surprised some day to see a P.G. and E. window display built around a hat, or a rug, etc. We like it."

Needless to say we like the way "Electricity's Gifts Make Living Better" will blazon across the Christmas season advertising scene this year in all parts of the West.

▼

### *Pay Off*

A NUMBER of firms and individuals made the editors' life much better in connection with the big job of assembling and preparing the October number, by their assistance and kindness in furnishing photographs or making new pictures possible. We offer an orchid of thanks to these kind and helpful individuals and companies:

Milo Cummings, of Utah Power and Light, for our cover; Orr E. Crites for the vitamin food data and appetising pictures; Clarence "Sandy" Pratt, for Christmas tree lighting pictures; Frank Weiss and R. A. Crosby of Los Angeles Gas and Electric for garden lighting pictures; Elliott Advertising Agency, San Francisco, for the Hupmobile picture; NBC for celebrities for the radio photmontage; T. P. Stroupe, for the football picture in the same; Anne Welcome, of Call-Bulletin for the use of a model kitchen; Pacific Coast Electrical Bureau's K. I. Dazey for wiring pictures from Fred Rae's "House of Charm" booklet; Walter Dailey, G-E Refrigeration Division; General Mills Inc. for bakery pictures; Bob Burrows and Leo Gianini, General Electric Lamp division; Cy Frellson of G.E. Supply Corp.; Earl Nilsson, Bill Miles of Westinghouse E. & M.; R. E. Morris, Westinghouse Supply; E. Macaulay, G - E Merchandise Department; Roy Kimberlin, Graybar; Bill Cranston, Thermador; James Stephens, Jr., Apex-Rotarex; F. S. Fenton, Jr., and Dan McShay, Easy Washing Machine Co.; Tom Supplee, Elmer Riley, Al Harrison, Frigidaire; Major E. W. Moore, H. E. Sandoval, Sunbeam appliances; Waters-Genter Co. for many excellent photos, only one of which was used this time; M. Sweyd, for use of his Lionel toys; Lloyd Kinkaid, Walker Dishwasher distributor; G. Haven Bishop, photographer, Southern California Edison Co. Ltd.; and L. C. Beringer, a real artist photographer; Al Meyer, and M. G. Sues, Leo J. Meyberg Co., for the loan of an RCA-Victor; and to many others whose advice, ideas, counsel and enthusiasm we have used and remoulded to the end that "Electricity's Gifts May Make Living Better."

▼

SHORTER hours for employers should be sought in an NRA code, so that the bosses can find enough time to attend all the meetings, conferences and do the association work which has developed of late. Or perhaps the 30 hr. week ought to be enforced on conferences.

## —*Read*

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# NRA—*A Swift Summary of Developments on*

. . Labor Individualizes,
. . Manufacturers Settle Product Groups,
. . Retail Code Signed

*Ah Love, could you and I with Him conspire*
*To grasp this sorry scheme of things entire,*
*Would we not shatter it to bits—and then*
*Remould it nearer to the heart's desire!*
*—Omar*

IF there is anything that the American cannot abide, it is delay. Patience is a virtue that seems to have gone out with some of the others. Therefore the mills of the codes, though they grind exceedingly fine, have been grinding far too slowly to suit desperate business men sinking in a sea of economics and calling loudly for a life saver. But when one is in the process of remaking the world a little nearer to the heart's desire, there are so many little bits to piece together! And when some of the pieces, such as labor, exert some of the well known individual initiative which employers have been asked to set aside for the common good, and thereby halt proceedings until some of their own long cherished dreams are incorporated in the new deal, there is nothing possible but delay.

¶**Fact is,** labor has very nearly wrecked the machine that was designed to save it. Strikes, such as those at the Westinghouse plants, reflect anything but glory upon the leaders of labor who utilize a patriotic and cooperative activity as a bludgeon to force through unreasonable demands upon sick industry. If anything breaks down the NRA program it will be the discredited "rugged individualism," discarded by business but now wielded by labor leaders for selfish ends. This is a time for team work, not star play.

¶**Another master code** affecting the electrical industry, however, did receive approval by the President. This was the retail code, approved Oct. 21, and now in effect. Both the wholesalers and contractors codes, though, seem to be deadlocked. Electrical manufacturers, on the other hand, are beginning to find their way about with their code, and supplementary codes are in process for various divisions of that industry.

### *Manufacturers*

¶**Ray Cosgrove,** manager of the refrigeration division, Westinghouse Electric & Manufacturing Co., visiting the Pacific Coast, gave a graphic description of manufacturer thinking and operation under the NEMA code. Since NEMA's code deals chiefly with wages and hours, and provides for uniform accounting and interchange of price lists, these phases of administration are being carried out. Individual groups, such as the refrigeration and washing machine makers, are filing supplementary codes, chiefly to define fair practices in their selling methods.

Gone will be advertising or selling stressing refrigerants in the refrigeration code. Gone too, will be the four year guarantees, and in their place makers of hermetically sealed types of boxes will offer customers a servicing insurance for a three or four year period at a nominal cost. Terms and credits will be better regulated, and trick methods of payment, such as by meter, or by small coins daily, will be outlawed.

¶**Costs** of production have risen because of shorter hours and increased payrolls, as well as because of similar rises in materials prices, all of which are bound to be reflected in the retail list for all makes. Labor troubles have begun in busy plants, because labor leaders have come to them, insisting on being considered the representatives of labor's own choosing.

¶**NEMA** met at Cleveland, late in September. President J. S. Tritle predicted the evolution of NRA into a permanent policy and urged more self-regulation rather than more government interference. Seventeen product groupings were made, each to be supervised by its own agency appointed by the board of governors. (See Electrical World, Sept. 30, 1933, p. 419.) Supplements to the basic code were recommended to cover trade practices, among them: misleading advertising, false statements, inducing breach of contract, fraud or misrepresentation, patent or trademark infringements, secret rebates, selling without profit, disparaging statements, splitting commissions, and unreasonable guarantees. In the product classifications supplementary codes will be drawn, including provisions for resale price maintenance, the right of the supervisory agency to fix a fair price in the event of destructive price policy is practiced, specifications as to time and quantities in contracts, and price discrimination by use of split shipments. The cost accounting and statistical work necessary is being developed rapidly and a budget of $400,000 for next year has been set.

¶**Pacific Coast** manufacturers are organizing into product groups too. Switch and panelboard makers are organized in both Los Angeles and San Francisco, operating under the Biddle Trade Bureaus. Other product groups are in formation.

### *Retail Code*

**Culmination** of the work of several months and nine national associations of retailers the master retail code was finally approved by President Roosevelt, Oct. 21. It represents the joint efforts of furniture, hardware, mail order, clothiers, dry goods, shoe, variety, drug, and music merchants, and is designed to cover retail operations in every field, including the electrical. The code fur-


*. . . The Blue*

NRA MEMBER U.S.
WE DO OUR PART

*I promise—*

**1. To support the Code and cut the arguments.**

**2. To give the iron ear to the fellow who has all those reasons why it won't work.**

**3. To remember that we are in a war, and that if it was all right for the Government to ask a few million boys to give their lives to settle a disturbance in Europe it must be fairly reasonable to request a few million merchants to endure a little discomfort for the common good.**

**4. To bear in mind that, after all, this time Uncle Sam is not asking me to leave my home and my family and show a machine gun squad that I can take it.**

**5. To realize that patriotism is patriotism, even when there are no bugles.**

**6. To regard the Blue Eagle as a Blue Eagle and not as a chisel-beaked woodpecker.**

**7. To remember that I have an obligation to do something more than stick a picture of a bird in a front window.**

**8. To realize that the slogan is "We Do Our Part" and not "We Dupe Our Partner."**

**9. To develop a rousing hatred of trickery, chiseling and the old "run-around."**

# *Codes Affecting Western Electrical Business* NRA

ther covers the retail operations of any joint wholesale or manufacturing and retail business. It sets up classes of personnel and employees, hour and wage minimums for each, and a separate schedule for the south. In the executive order signed by the President, accompanying the code, exemption is made of small retail businesses, employing less than five people, in small towns of less than 2,500 population not in the immediate trade area of a large city. Every retailer should read carefully the entire code, copies of which are available from the nearest district office of the Department of Commerce.

¶**Prices**, the nub of retail troubles, receive only tentative support under the code. One would think that the obtaining of a proper price to cover cost and overhead was something of a crime from the attitude expressed toward this phase of codes. If anything is evident in the present demoralization of business it is that the preservation of the ancient right of the buyer to chisel at the expense of everything, including his own stability and buying power, is something that needs revision to a more balanced relation.

So price increases are limited to just the amount needed to cover increased costs, which is fair enough, but on the other hand "loss leaders" are not prevented below cost plus an allowance for wages of store labor, to be fixed by the trade authority. Exceptions are made where competition has to be met (which is a bit paradoxical), and in disposing of surplus, bankrupt, or damaged stocks.

¶**Trade practice** rules include those requiring accurate advertising, and prohibits the advertising of "generally underselling competitors." Substitutions of brands, and secret premiums to employees of buyers to influence sales, are taboo. NRA label use is defined; prison made goods are required to be sold under circumscribed conditions; company scrip is not to be used. Administration is being set up through a National Retail Trade Council, with local committees. There will be an economics board, and a regional advisory committee.

Electrical dealers will find, between this code and that of the manufacturers, the machinery for greatly improving business practices in their field. It will be well to study this code, align with responsible associations, and help to see that it is lived up to.

### *Wholesalers*

¶**"Progress,"** the familiar word that can mean so much or so little, was all that Al Nicoll, president of the Pacific Coast Division, NEWA, would say as to the wholesalers' code, but in his case "progress" means that the code committees have been anything but idle. In fact the first drafts of the wholesalers code, gone over at Del Monte and at Buffalo meetings, have had to be completely revised. The definition of a wholesaler, for instance, had to be redrawn. Saturday opening is apt to be left to a local 75 per cent vote. Labor advisor D. W. Tracy (president of I.B.E.W., by the way) wanted to see overtime paid in labor provisions. Price regulation beyond rules prohibiting selling below cost do not make much headway, even the rule relating to maintaining manufacturers' suggested resale schedules being turned down.

**. . Wholesalers Revise Their Codes,**

**. . Contractors Codes Held up by Wage Scales**

¶**Radio wholesalers'** code, too, is being revised. It seeks to cover both the wholesale and retail branches of the radio industry. In presenting its revised draft the National Federation of Radio Associations and the Radio Wholesalers Association made a strong case for a minimum markup of 20 per cent to cover overhead.

### *Contractors*

¶**Labor's** stand on wages vs. the "incentive to build" has held the master construction industry code, and with it the electrical contracting code, in a state of suspended animation. Finally, however, on Oct. 26, a hearing was called in Washington, at which NRA submitted a revision of the contractors' code to the code committee of NECA, which was turned down, according to telegraphic report from L. W. Davis, executive manager, as unacceptable. NECA then submitted a revision of its own, dated Oct. 27, from which no further report has come. NECA, however, has sent out calling for nominations to the administrative agency to be set up regionally and locally for enforcement of the code.

¶**California** contractors likewise struck a calm with their CRA code. Deputy Administrator Montague pointed out that California's law makes violation a felony, hence has to be sure of its constitutional ground. A row developed over minimum wages and hours, labor holding for 30 hrs. at $1.33 per hour for journeymen; contractors from practically everywhere holding to $1.00 an hour, possibly for a 35 hr. week. Motor shops entered a separate schedule of 80 cents for first class, all'round men, 50 cents for average, 30 cents for beginners, and favored a 40 hr. week because of the emergency nature of their service. Manufacturers' service shops asked to be excluded but were turned down. Two more hearings are promised, one in Los Angeles, another in Sacramento. Meanwhile the CRA has run short of funds and its work is thus slowed down. It is anybody's guess as to which code will be approved first, the state or the national.

## *Eagle Pledge*

**10. To have no time for the fellow who would rather obstruct a plan that might cost him a $500-a-year loss than to support a plan that would enable ten million people to eat regularly.**

**11. To stop talking about "interference with natural economic laws," "inevitable business cycles," etc., and to realize that nobody ever got a wrecked truck out of a ditch by citing precedents.**

**12. To remember that we were all demanding action—and that finally we got it.**

**13. To realize when in a critical mood toward Little Nira that nobody has suggested a better plan for quick action.**

**14. To be willing to take it on the nose for a year (if absolutely necessary) to cure a national headache.**

**15. To keep ever foremost in the mind, when talking about the sacrifice being asked of me, that, after all, I'm not asked to put on a uniform, go to France, dodge shrapnel, sleep in the mud and get what comfort I can out of the fact a girl named Nellie is knitting me a pair of socks.**

**16. To work more and talk less, always realizing that it is impossible to pull a drowning man out of a well by throwing him a plate of boloney.**

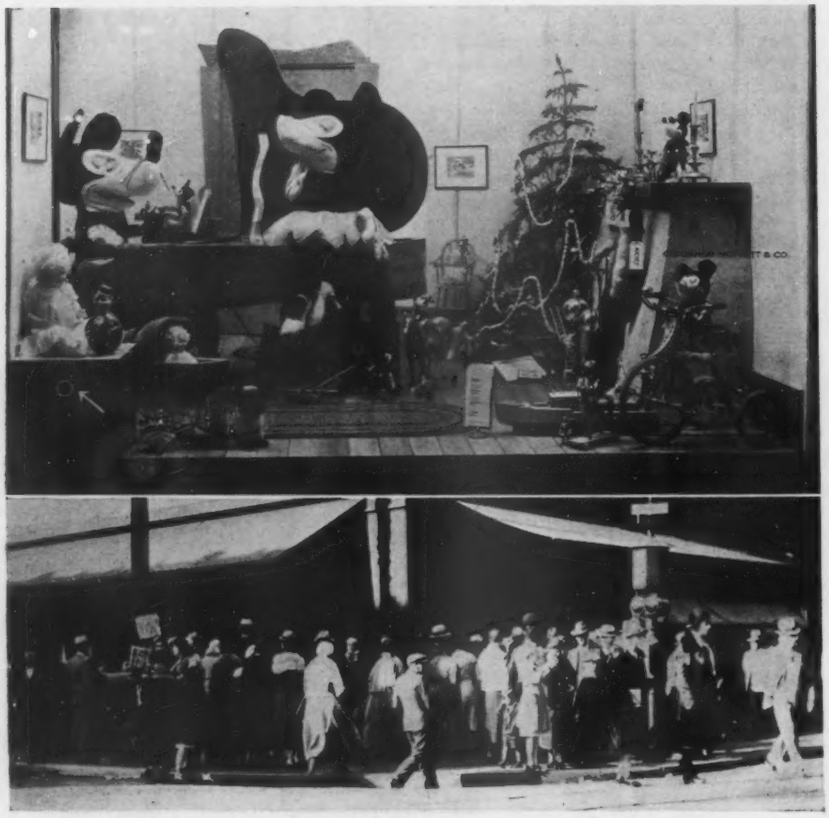
**17. To remember that the only difference between a slacker in this crisis and a slacker in the World War is that the slacker in the World War had more good reason for being scared stiff.**

**18. To remember that we were all shouting for "a President who would do something."**

—H. I. PHILLIPS

[Quoted by Donald Richberg, counsel, NRA, in a radio address to the American Legion.]

# Sales of the Month » » »



### *Mickey Mouse Sings—*

*Just as the electric eye gave movies a voice, and brought to Mickey Mouse the tremendous popularity enjoyed by Walt Disney's masterpiece, a radio set ingeniously gave voice to a window display at O'Connor Moffatt & Co., San Francisco department store, last Christmas. A. O. Dinsdale, master of animated window displays, built one which not only had Mickey playing the piano and singing to Minnie, but carried his voice to the street outside by means of an ingenious arrangement. A dynamic speaker was hidden inside a big dice at the corner of the window. From it ran a rod to a vacuum cup, which adhered to the plate glass window. (See arrow on upper photo) A special record, made for the purpose, was played on an electrical pickup phonograph inside the store. The sound was amplified and the energy transmitted to the window pane by means of the dynamic speaker. The window itself acted as the reproducing diaphragm. The window absolutely blocked traffic during its entire period on display, as will be seen in the lower photo. Animated window displays always attract crowds if well done, but add sound to them, and they are MADE*

▼

## Edison Launches $1,000,000 Program

Calling for the expenditure of $1,000,000 in commercial promotion activity and advertising, a 12-months new business campaign for the Southern California Edison Co., Ltd., was announced by Harry J. Bauer, president of the company, as this issue went to press. The program includes many radical departures from past activity. It will be described in detail in the next issue.

▼

## Cookery Council Exhibits at Fair

Cooperating under the sponsorship of the Southern California Electric Cookery Council and the Junior Electric Cookery Council, leading manufacturers of electric ranges, the Southern California Edison Company and the Los Angeles Bureau of Power and Light had one of the most attractive and effective exhibits at the Los Angeles County Fair at Pomona, Calif., Sept. 15 to 24. Henry C. Rice, merchandising manager of the Edison Company, is chairman of the Southern California Cookery Council and Jack Hoyt, California representative for the Walker and Pratt Manufacturing Company, is president of the Junior Cookery Council. In planning the cooperative display of ranges for the fair, they had the help of Chester H. Dye, of the appliance sales department of the Bureau of Power and Light; John H. Mead, Pomona division manager for the Edison Company, and Harold L. Moore, Edison sales supervisor. The ranges on display were the Westinghouse, General Electric, Hotpoint, Graybar-Crawford, Standard and Marion. Representatives of the range manufacturers and distributors also worked with the cookery council members to assure the success of the exhibit. Miss Louise Wilson, home economist of the Edison Company, was in attendance a part of the time at the booth, and had on display there attractive examples of cold pack canning.

The exhibit, occupying a space twenty by fifty feet, with its glistening ranges and colorful lighting, was one of the feature booths of the fair.

Electrical equipment of all types was displayed in large numbers. A survey of exhibits showed a total of 158 electrical appliances, as compared with a total of thirteen gas appliances.

▼

*One corner of the Cookery Council exhibit at Los Angeles county fair, Pomona, utilized this portable "kitchen" with its modernistic shelves and panel lighting, designed by Arthur Elliott of the Bureau of Power & Light*

## Dr. Allison Tours Far Western States

Preaching the gospel that electric refrigeration sales promotion should be an all-year activity, Dr. G. W. Allison, field representative of the National Electrical Refrigeration Bureau, completed a tour of the far Western States in September and October. During the trip he spoke before gatherings of refrigeration distributors, dealers, salesmen and utility employees or before local refrigeration bureaus in Denver, Salt Lake, Pocatello, Twin Falls, Boise, Spokane, Portland, Los Angeles, San Diego, Oakland and San Francisco.

*President E. W. Meise, and manager Clark Chamberlain of the San Diego Appliance Bureau get a dramatic picture of refrigeration and appliance possibilities from Doc G. W. Allison, national field secretary of the Refrigeration Bureau*

Dynamic apostle of the doctrine of cooperation and enthusiastic and inspirational expounder of the blessings of electricity, Dr. Allison left behind many converts. In his stirring messages to the industry he described cooperative activity as a five-point sales builder.

"Its value," he said, "can be measured in five different directions. First and foremost, it stimulates local activity which in the last analysis, is the nub of distribution. The final sales plans or the best national advertising will fail unless the dealer and the salesman on the firing line function. Second, it coordinates local action so that the public cannot fail to respond to the sales barrage directed at it. Third, it provides a theme song for all sales organizations without which public acceptance cannot be obtained. Fourth, it assures unificaton of sales activity instead of sporadic individual efforts. Finally, it minimizes destructive competitive advertising and sales tactics."

## Tie Appliances and Radio in Show

San Diego's first Electrical Exposition is over, but the memory lingers on. Sponsored by the Bureau of Radio and Electrical Appliances of San Diego county, the electrical show was a success both from the standpoint of attendance and business done. Fifty-one thousand people visited the exposition during the five days from Oct. 4 to 8, breaking all attendance records for shows of a similar nature. Ten thousand people attended the opening ceremonies which were built around a demonstration of the "photo-electric eye" so hooked up that an interruption of the light beam by President W. F. Raber, of the San Diego Consolidated Gas & Electric Co., put into action gongs, search lights and whistles.

Electric Week in San Diego was inaugurated on Tuesday noon, Oct. 3d with a 30-minute broadcast over KFSD and before the San Diego Electric Club by Dr. G. W. Allison, field secretary of the National Electric Refrigeration Bureau. Both San Diego radio stations, assisted in the opening ceremonies with sustaining programs celebrating Radio Progress Week.

San Diego's three metropolitan newspapers issued special sections announcing events of the week and promoting the radio show as a demonstration of electricity at work. Mayor John F. Forward of San Diego, issued an official message urging people to attend the exposition.

Thirty-one dealers representing the radio and electric refrigeration industry of San Diego County, participated with elaborate exhibits. The exposition donated space to both radio stations for feature exhibits and to the radio industry for a display of "Eleven Years of Radio" portraying in a practical manner the evolution of radio reception from the crystal set to date. Every electric refrigerator manufacturer was represented through local dealers. All publicity promoting the exposition was supervised by the promotional departments of the power company.

Perhaps the most convincing incident of the show's value was demonstrated during the closing hours, when eight of the largest exhibitors asked that their same space be reserved for a 1934 exposition.

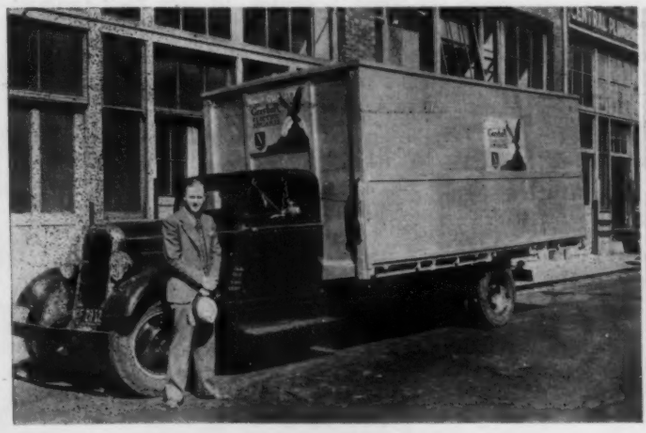
▼

## Appliances Feature Vancouver Show

Electrical appliances of all kinds were given greater prominence this year at the Canada Pacific Exposition in Vancouver, B.C. than ever before, and greater interest in these lines by the public is also reported. The B.C. Electric Railway Co., in addition to its usual large and artistic display featuring all electrical goods from door bells to ranges and refrigerators, also had a large display in a marquee erected adjacent to the live stock and horticultural buildings.

This exhibit featured use of electricity for farm and dairy refrigeration, seed cleaning, tool grinding, stump burning, root pulping, cattle clipping and grooming, sheep shearing, dairy water heating, domestic and irrigation pumping, plate grinding, hammer mill, silo filling, and wood cutting. A raised platform in the center of the display presented a model farm kitchen featuring appliances for domestic use. All the demonstrations were in actual operation. A map showing the network of rural power lines completed this exhibit. On completion of the Vancouver exhibition the entire rural display was taken on a tour of all the

*Below is Graybar's traveling appliance sample case, with Roy Kimberlin, sales manager, in front of it. At the right is the interior, with a full Christmas line displayed on shelves. Above, right, is the interior of its predecessor, the traveling refrigerator display truck which showed the mechanical features of the machine to mechanically minded dealers to such advantage*



# WIN

## with your Window

Seven cash prizes totaling $700 are offered for winning electric refrigerator window displays on exhibition between November 15th and Christmas.

Every retail sales outlet for Electric refrigerators is eligible.

There are separate prizes for dealers and for central stations whether or not they retail. There are prizes for windows of less than 100 square feet floor area and prizes for larger windows. In each class the first prize is $100 and the second prize is $50.

There is a $100 prize for the local Electric Refrigeration Bureau which, in proportion to its membership, is best represented by quantity and quality of entries in this contest.

The rules are simple. There is nothing to be submitted but a photograph and a brief letter of explanation.

Decide now that *you* are going to win one of the prizes.

Send at once to the following address for rules of the contest and helpful suggestions.

**ELECTRIC REFRIGERATION BUREAU**

*Sponsored by*

EDISON ELECTRIC INSTITUTE

420 Lexington Avenue, New York City

*A block of washers, grown from a single house (almost eclipsed, in the center of the picture) with the washers right on the sidewalk, has developed into a sales, repair, and even parts manufacturing business for the Los Angeles Washer Exchange. A. L. Berry, owner, is on the extreme right of his staff, pictured standing squarely behind the company's product, and W. B. Elfstrom, general manager, next to him*

small agricultural fairs in the company's territory.

Manufacturers represented by large displays included the Northern Electric Co., Hoover Co., Maytag Co. Ltd., Beatty Bros. Ltd. and Premier Vacuum Cleaner Co. McLennan McFeely & Prior Ltd. showed Frigidaire, Eureka washers and Westinghouse radio for which they are distributors.

▼

## Prizes Announced for Refrigerator Displays

Cash prizes totaling $700 for the best Christmas holiday window displays of electric refrigerators are being offered by the National Electric Refrigeration Bureau. There will be nine prizes awarded, eight of which, aggregating $600, will be divided equally among dealers and power companies competing.

For dealers there will be a prize of $100 for the best window of 100 sq.ft. or less and $100 for the best window of more than 100 sq.ft. with $50 second prizes in each of these two classifications. For central stations the same prizes and same size restrictions will be in effect. In addition, $100 will be awarded to the local Electric Refrigeration Bureau which is best represented in the contest by quantity and quality of displays submitted by its members in proportion to the total number of retail sales outlets in their territory.

Attention is called to the fact that this year's competition does not include store interior displays but is confined solely to show windows. Any good electric refrigerator window designed to accentuate the desirability of a refrigerator as a Christmas gift and on display any time between Nov. 15 and Christmas will be eligible for the competition. The window may contain some tie-up to the Electric Refrigeration Bureau but this is not compulsory. Several window display accessories may be obtained from the bureau headquarters at nominal cost. For the purposes of the contest the term "dealer" is meant to include any sales outlet for electric refrigerators other than a utility company. One photograph of the window and a letter of explanation must be received by the Electric Refrigeration Bureau, 420 Lexington Ave., New York, on or before Jan. 12, 1934.

▼

## Range Campaign Features $10 Wiring

Electric range interests in Portland, are cooperating in a campaign to offer the public wiring for $10 with every purchase of a new range during a campaign period from October 16 to December 23. This campaign, which required mutual agreement between the distributors, dealers, wiring contractors, and power companies was effected through the Electric Refrigeration and Cookery Council of Oregon consisting of range and refrigerator distributors and utility companies in that state.

The wiring, which is offered at the $10 rate, the lowest price for range wiring ever offered in Portland and vicinity, contemplates a high quality job that would normally cost the purchaser $35. The balance of the cost of the job is being taken up by the various interests involved in definite, pre-arranged amounts. All the wiring created by the campaign is to be allocated by the Electrical Contractors' Association to their members in rotation.

The campaign is abundantly supported by advertising, the backbone of which is a newspaper campaign conducted by the two utility companies, Portland General Electric Co., and Northwestern Electric Co. This advertising features only the $10 wiring and the advantages of electric cookery with the expectation that dealers will tie in with it with advertising.

▼

## From House to Block

If oaks from acorns grow, A. L. Berry's Los Angeles Washer Exchange, at 3945 East 9th St., grew from a little cottage, with a canvas cover over the yard, to spread over the entire block almost. Three years ago he started, after leaving the management of Washer Wilson stores, with one service man. The business was designed to fill the prevailing need for a good repair and service center for washing machines, and an exchange of reconditioned second hand machines. Soon the necessity to manufacture parts for orphan machines became apparent, and Mr. Berry formed the Washing Machine Parts Co., at 1233 So. Hope St. Here a most complete stock of washer parts was assembled, especially of Horton and Meadows machines. Wringer roll replacements brought forth the idea of manufacturing these too, and the Los Angeles Wringer Roll Co., of South Gate, Calif., in its first year of operation supplied the trade with 6,000 rolls. The exchange has become the sales agency for new machines, ironers too, and its staff includes outside salesmen as well as a service crew.


**What?**

**ONLY..**

Yes, it's true . . . and Dealers, you'd better stock the Olympic Sharpener **now**, before the Christmas rush. Backed up with national advertising in leading publications . . . printed literature and window display material. Man! What a fast moving article—and it's **profitable**. Stocks available for immediate delivery. See your wholesaler — PANAMA LAMP AND COMMERCIAL CO., Pacific Coast Distributor, 815 Howard St., San Francisco, 820 McGarry St., Los Angeles.

**$2 Retail**

SEND FOR LITERATURE OR TRIAL ORDER

# Better *Light*

•

**A Symposium of Activity Here in the West—**

"OUR revenue from lighting might indicate that nothing is being done to maintain our lighting standard. The reverse is true and never before have we worked so consistently to stem the tide of decreasing revenues. Were it not for this activity I dread to think what the monthly reports would be." So speaks one Pacific Coast commercial manager in emphasizing the importance of lighting sales activity and particularly the national "Better Light-Better Sight" campaign.

From all fronts come reports of successful lighting sales programs which are building back jaded revenues for the utilities and are making business for dealers, contractors and manufactureres of lighting equipment. No one field in the industry offers more potential business than lighting. It is the absolutely essential electrical service. It is one that every member of the industry can sell both by the spoken word and by setting an example in his own home or his own place of business.

Gleaned from all sections of the West are the following programs which have been tested and proved successful in the development of lighting business.

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## Visual Demonstration Found Effective

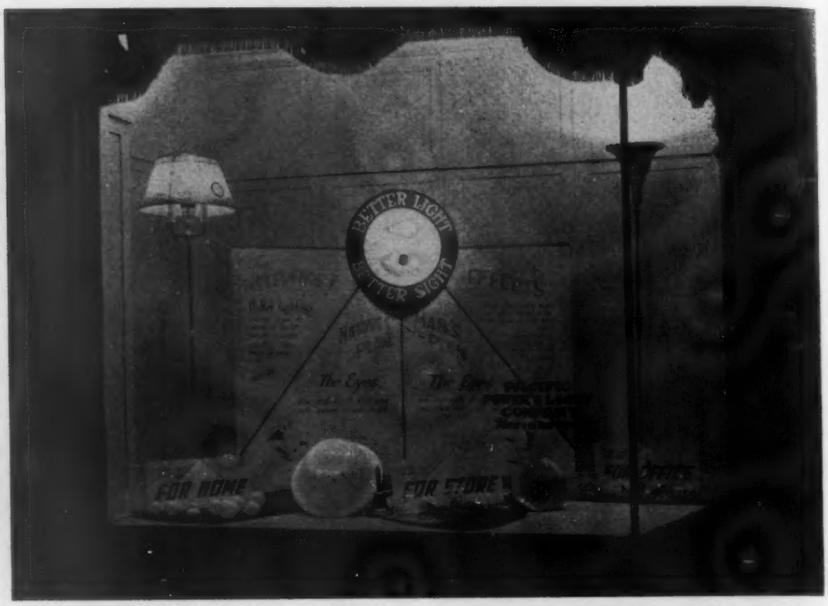
Every commercial customer, office, store and factory on the lines of the Washington Water Power Co. is receiving a call from an illumination engineer equipped with a "Sight Meter," in an effort to demonstrate the inad--equacy of present illumination and its effect on eyesight, merchandise sales or industrial activity. Marked interest in illumination is being developed, principally because, with the "Sight Meter," it is possible for the customer to visualize and understand the effect of burnt or blackened lamps, dirty fixtures, wrong voltage lamps and underwattage lamps. Initially no effort is made to sell the customer additional lighting equipment, but rather to point out faults in the present installation er in the manner in which it is operated Frequently wattage is increased and ultimately a complete new layout is designed to provide proper and adequate lighting

Visual demonstration has been found to be an effective sales tool by this company. Exterior lighting is demonstrated right on the customer's premises through the use of a specially equipped car which is fitted up with portable floodlighting units. A portable interior unit is being built which will permit the lighting men to demonstrate the proper fixtures for interior illumination.

In offices portable indirect torcheres are being recommended to supplement the permanent fixtures. It has been found that many renters are unwilling to invest in permanent fixture installation, whereas they are willing to invest in torcheres or portable units which they can move at will. A portable collapsible reflector equipped with a 300-watt lamp and an extension cord is used by the lighting reperesentative to demonstrate this kind of lighting. Where the customer evidences interest in this type of unit his name is turned over to a dealer who makes the sale direct.

Later in the year the Washington Water Power Co. contemplates undertaking a cooperative campaign with dealers on the sale of an indirect torchere-type unit to residential consumers.

Aggressive newspaper advertising plus a campaign of car cards showing good and bad lighting is being used to business is largely suburban.




*Standard window display used in the district offices of Pacific Power & Light Co. for the Better Light-Better Sight campaign*

*Our Cover—*

*Washington Water Power Co. illumination engineers sold Shell Oil Co. on the desirability of adequate lighting for this Spokane service station, which incidentally is the first on the coast with cantilever type marquise. Total connected load is 20 kw., with 9 kw. in floodlighting, 5 kw. in other lighting and 6 kw. in heating and power*

## Monthly Sales Activity Pays

Specialized monthly sales activities for practically every month in the year has been found to be an effective means of developing lighting load by the San Joaquin Light & Power Corp. according to J. E. Hammond, lighting sales specialist. From January 1 to February 15 efforts were directed on commercial lighting with quota exceeded by 20 per cent. During March and April a special campaign was conducted for improvement of service station lighting with a 90-per cent quota achievement.

Night sports lighting has been a particularly fertile field. From May 1 to June 15 a campaign brought 169 per cent of quota. A recent survey of the territory served by this utility showed a connected load of 1,360 kw. of night sports lighting, which is considered a remarkable record for a utility whose business is largely suburban.

Another highly productive sales activity was a cooperative employee campaign on yard and garden lighting during June and July. Approximately 500 units of the 200-watt utility floodlight-type were sold. This is the second year for a successful campaign of this character. During October and November a special campaign is being directed at commercial lighting customers.

▼

¶Effective use of a comprehensive and complete mailing list of all prospects on its system is the basis for the lighting sales activity of the Northwestern Electric Co., according to M.S. Glenn, illuminating engineer. All literature in connection with the E.E.I. Better Light-Better Sign campaign is being

# Better *Sight*

*Taking its own medicine, The Washington Water Power Co. relighted its salesroom at Lewiston, Idaho, with 6 dual-purpose luminaries, each containing 6 200-watt lamps and an S1 sunlamp. Transformers were located remotely. With all lamps on, illumination reaches 90 ft. candles directly under each unit, 30 in. from the floor*

mailed to this list on a definite schedule. During October direct mail and other sales activity was concentrated on commercial establishments, public buildings, service stations and other prospects for floodlighting.

▼

## Flood Lighting Gets New Load

Commerical, domestic and floodlighting fields are producing additional load and revenue for the Pacific Power & Light Co. according to H. C. McDaniel, lighting sales supervisor. The floodlighting activity was carried on during May, June, July and August. Four mailing pieces in the form of postcards were sent to 189 owners and operators of service stations, auto camps, garages and roadside stands.

Copies of these cards were mailed to 45 oil company managers with a letter explaining the campaign and seeking to enlist their support. Results of this activity follow:

| | |
|---|---|
| Cost of cards and mailing | $18.23 |
| Personal calls by lighting representatives | 483 |
| Number of lighting proposals submitted | 42 |
| Number of installations made | 27 |
| Volume of wiring and fixture business created for electrical contractor-dealers | $1,000 |
| Connected load added | 18.2 kw. |
| Estimated annual revenue | $1,275 |

In connection with the Better Light-Better Sight campaign a four-page leaflet entitled "Do You Give Smoked Glasses to Prospective Customers" was mailed with October commercial service bills and a second leaflet, "Things I Never Until Now" was mailed in November. "Eye Insurance for the Home" was the title of a booklet sent to all domestic customers with October bills. A special window display on lighting was maintained in each district office for two weeks. Lighting representatives were equipped with a commercial lighting demonstration kit and Weston illuminometer.

Owing to the success of a five-week cooperative campaign featuring Ivanhoe "Renu-a-lite" units equipped with 150-watt lamps which was conducted in January, a similar domestic sales activity is planned for November and December. These units were sold by the company's own sales organization and by contractors and dealers at an installed price of $1.95 with terms of 95 cents down and 50 cents per month. Sales totaled 895 of which 87 were sold by dealers. The campaign was backed up with window displays and newspaper advertising. A three-day trial by the consumer was one of the features.

▼

¶Selection of a limited list of representative commercial customers which are considered good prospects for better illumination is the basis of a six-week lighting activity being conducted by the Puget Sound Power & Light Co. Lighting representatives equipped with a Weston lighting kit then make a demonstration and survey with recommendations for alterations or improvement. Purpose of the program is essentially to obtain a cross-section of commercial lighting possibilities in the territory served by the company with the idea of more extensive programs later.

▼

¶On one utility company's lines, the load on a 30-mile branch had dropped off materially due to cessation of mining. As the remaining light and power load for the district could be carried satisfactorily at 22 kv., the line was reconnected for that voltage at the supply end using stock transformers of the correct primary and secondary voltage. At the receiving end, transformers were reconnected from star delta to delta star. The maintenance costs on the line were materially reduced and installation stresses were cut down and corona eliminated.

▼

## Re-Lamping Campaign Gets Results

A cooperative re-lamping campaign involving dealers, jobbers, salesmen and power company employees was the Idaho Power Co.'s tie-in with the national Better Light-Better Sight Activity. Feature of the campaign was the offering of a carton of standard 60-watt lamps for $1.08, which represented a a discount of 10 per cent from the unit price.

Initial plans for the campaign were sent to approximately 150 dealers handling lamps in the territory served by the company in a letter over the signature of L. W. Brainard, sales manager. This letter was followed by a second which contained proofs of newspaper advertisements to be run, sample order cards and the announcement of a window display contest for which all dealers were eligible. Support was also enlisted from all lamp manufacturer's men and jobber's salesmen traveling in the territory.

Newspaper advertising as well as a folder mailed to all customers announced that special offer was available from all dealers as well as the utility. This campaign has become an annual event with the Idaho Power Co.

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## Standard Lighting Recommendations Made

Prospects for better illumination all receive the same treatment for the Southern Sierras Power Co. In the case of existing buildings a complete survey is made of the premises and a formal recommendation made which not only includes lighting, but changes in wiring as well as recommendations as to heat and power appliances which might be employed. Complete wiring specifications are also attached.

In making up these specifications and recommendations considerable time

and effort is saved by the use of standard paragraphs which have been compiled from previous experience and numbered for easy reference. Recommendations are always delivered in person. In this manner statements made may be gone over carefully with the consumer and all questions answered. One of the results in this method is that although frequently the complete installation recommended may not be made, the recommendation is placed on file and the job completed months or even a year later.

Experience of this company is that in making a lighting recommendation it is unwise to make a compromise between the customer's plea of inability to meet the expense and good lighting practice. Recommendations are in accordance with illumination standards and good judgment as to the amount of lighting the customer can profitably use. This plan has operated successfully in all phases of lighting development, including residential, industrial, commercial and recreational.

▼

## Every Customer To Be Surveyed

As an approach for the development of additional load Utah Power & Light Co. is making a survey of every commercial customer on its lines, utilizing the entire lighting sales force for this purpose. The approach to each customer is made on the premise that the company was anxious to discuss with the customer any problem pertaining to any electrical use he might have.

Invariably the customer's first interest is the question of cost. Rather than attempt to explain the cost per kilowatt-hour, the salesmen place this discussion on the simple common ground of the cost of electric service on a daily basis, since practically every merchant knows what his daily average receipts are and can see the comparison between that item and cost of electric service. Each contact man is equipped with a survey card indicating the monthly costs for various classes of service for the past year, the average monthly bill, the total annual bill, the average cost per kw.-hr. and the average daily cost. Having justified to the customer's satisfaction his electric service charges, the salesman is then in an ideal position to discuss additional electrical uses.

The Weston illuminometer is frequently used in analyzing the present lighting system. Suggestions as to cleaning of fixtures, replacing lamps, cleaning or painting of walls and ceilings and voltage tests are made. With interest aroused it is then possible to discuss new lighting layouts where advisable. In every instance an attempt is made to convince the customer that he can find no better advisor in the matter of seeking the most efficient use of electrical energy than the individual who calls on him periodically.

*Survey card used by the Utah Power & Light Company's lighting salesmen in a customer contact program which involves calling on every commercial customer on the company's system*

*Employees' lamp campaigns, such as the annual affair conducted by the San Diego Consolidated Gas & Electric Co., with the entire company competing, department against department for sales results, sometimes seem to dealers an unnecessary duplication of their effort and yet, what a market condition they reveal. Empty sockets galore never get refilled without the conscious effort to remind people to fill them. Most of such drives are now operated on a cooperative basis. Many dealers have staged them themselves*

▼

In capitalizing on the Better Light-Better Sight activity a central committee composed of lamp agents, manufacturers, wholesalers and utility representatives has been set up to devise procedure for different types of lighting sales activity of a cooperative nature in various towns through dealers, utilities and department stores. Additional educational work is being carried on through lighting lectures by the sales force and home service representatives before women's clubs, gatherings of electrical people and other groups.

**¶Lamp Lighted**—An unusually attractive window display of table and boudoir lamps is possible by arranging the lamps, in profusion, in a window on a series of tiers in geometrical patterns and lighting the window only by the light of certain rows of such lamps themselves, with the main lighting turned off. The Nathan-Dohrmann Co., in San Francisco, recently had such a window, which proved particularly attractive at night.

▼

**¶Jim Shirreffs**, president of the S. & M. Lamp Co., Inc., of Los Angeles, has announced the appointement of John D. Erikson, 143 Kearney St., San Francisco, as the representative of that company in central and northern California. He also announced the appointment of Jack Baxter, 954 Southeast Seventh Ave., Portland, to represent Oregon and Washington. Harry Tanner, of Denver, and McAllister Agencies, Ltd., will continue to represent them in their respective territories.

▼

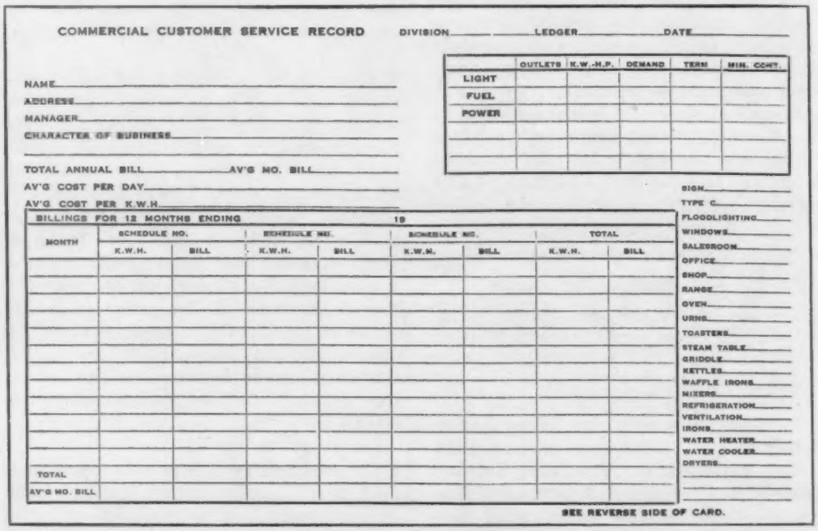
**¶Aquarium Heating** promises to be popular among fancy fish fanciers, of which there are a surprising number. Special, automatic, temperature-controlled immersion heaters are being brought out by manufacturers for this trade.

▼

**¶Westinghouse Lamp Co.** offices in Seattle have been moved from 1411 Alaska Bldg. to the eighth floor of the Lloyd Bldg. where the Seattle offices of the Westinghouse Electric & Manufacturing Co. are located.

▼

**¶Wabash Appliance Corp.**, Brooklyn, N. Y., manufacturers of incandescent and sun lamps, announces the appointment of The Kendix Co., of Seattle, Wash., as sales representative for its products in Washington, Oregon, Idaho and Montana, and Factory Distributors Co., of San Francisco, as sales representative for northern California.


COMMERCIAL CUSTOMER SERVICE RECORD DIVISION LEDGER DATE

| | OUTLETS | K.W.-H.P. | DEMAND | TERM | MIN. CONT. |
|---|---|---|---|---|---|
| LIGHT | | | | | |
| FUEL | | | | | |
| POWER | | | | | |

NAME
ADDRESS
MANAGER
CHARACTER OF BUSINESS
TOTAL ANNUAL BILL AV'G MO. BILL
AV'G COST PER DAY
AV'G COST PER K.W.H.

BILLINGS FOR 12 MONTHS ENDING 19

| MONTH | SCHEDULE NO. K.W.H. | BILL | SCHEDULE NO. K.W.H. | BILL | SCHEDULE NO. K.W.H. | BILL | TOTAL K.W.H. | BILL |
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SIGN
TYPE C
FLOODLIGHTING
WINDOWS
SALESROOM
OFFICE
SHOP
RANGE
OVEN
URNS
TOASTERS
STEAM TABLE
GRIDDLE
KETTLES
WAFFLE IRONS
MIXERS
REFRIGERATION
VENTILATION
IRONS
WATER HEATER
WATER COOLER
DRYERS

SEE REVERSE SIDE OF CARD.

# A KILOWATT A CALL

## *with the New Approach to Selling Lighting*

We quote from a letter from a large eastern lighting company. It is typical of many in our files:

"While we have just had the kit for a few days—7 kilowatts will be added to our load as a result of 7 calls. In each case it was greeted with favorable comment, and on every call we were able to secure added load, or install a trial demonstration."

Another company says:

"After purchasing four kits and instructing salesmen in their use, a man was sent out to make calls. In the period of the first three weeks, the results appear in part as follows:

| | |
|---|---|
| Number of calls | 216 |
| Immediate installations resulting | 11 |
| Kilowatts | 8½ |
| KW Hours | 12,640 (estimated) |
| Revenue | $374 |
| Prospects— | |
| Show windows | 26 |
| Store interiors | 42 |
| Store exteriors | 3 |
| Estimated revenue from above prospects— | |
| Show windows | $1,235 |
| Store interiors | 3,620 |
| Store exteriors | 175 |
| Re-painting jobs stimulated | 21 |
| Mazda lamp sales stimulated | $1,000 (estimated) |
| Equipment sales stimulated | 409 |
| Complaints satisfied | 24 |

"The customers are almost always appreciative of the service rendered and every one of the 24 complaints has been easily and satisfactorily settled. In fact one seemingly bad complaint was turned into a brand new window lighting installation. In many cases the merchant will interrupt the story to bring in neighboring merchants. Customers too show great interest."

* * * *

The New Approach to Selling Lighting is a proven way to add lighting load. It is at work now, building revenue for many utilities. Why not put it to work for you? A letter to the sales division which supplies you with lamps will bring you complete information. General Electric Company, Nela Park, Cleveland, Ohio.

# EDISON MAZDA LAMPS

GENERAL ELECTRIC

*About Folks in the*

# Selling Game

## Wins Cookery Contest Prize

A good looking neon sign, with the words "Cook Electrically" upon it, is the award earned by Bill Harvey, appliance sales manager of the Guilbert Bros. Electric Co. in San Jose, as first prize winner for the Pacific Coast district in the National Cookery Council contest. W. C. Harvey has made a specialty of range selling, handling the Monarch line in that territory for a number of years. As manager of the appliance selling department of this contractor-dealer establishment, he has come to know the requirements of farm and city customers alike. City buyers may prize the cleanliness and coolness of electric cooking but the farm woman who has to prepare meals for a crew of hungry workers wants quantity production. Therefore, he sells large numbers of ranges with big ovens. The kitchen heater type of range also is very popular among the farm women.

**Larry A. Krieg,** salesman for Pacific Gas and Electric Co. at Jackson, Calif., was winner of the $150 cash prize in the National Cookery Council's contest for the Pacific Coast district, among central station salesmen.

▼

¶**E. S. Mathews** has opened a new electrical appliance store with a thoroughly equipped service department at 117 South Central Ave., Glendale.

▼

¶**R. A. Enright** has opened a new and more spacious store at 115 N. State St., Ukiah, Calif. In addition to handling a complete line of appliances, radio and supplies, Mr. Enright will operate a general electrical contracting business.

¶**Gould & Foulkes,** Los Angeles and the Coachella Valley dealers have equipped a service truck with electrical supplies for making repairs to appliances and with Chromalox range units. A range service man is in charge of the truck. Before going into a territory, a letter is sent forth telling the merits of the units to range users and announcing that a man will call and demonstrate. Trial before purchase is allowed when occasion demands. This feature has helped sell other appliances and services, as well as wiring for them, according to L. W. Thompson of the Electrical Material Co., Los Angeles.

▼

¶**Waterhouse-Lester-Scovel ..Co.,** 636 Van Ness Ave., San Francisco, has taken on the distribution of American Bosch radio and Prima washing machine. George Stackman, formerly of the American Bosch Co. and recently general manager, will now become part owner of the San Francisco company in charge of radio sales. Tom Thompson, formerly with Sparton, is also new with Waterhouse-Lester-Scovel in charge of the radio and refrigeration departments. The company recently placed an exhibit in the Furniture Exchange Building.

▼

¶**Verne M. Miller,** vice-president North Coast Electric Co., formerly of Seattle, has taken over the management of the Portland office of the company vice W. W. Wheat who has resigned to enter business for himself as a manufacturer's agent. Mr. Miller has been with North Coast Electric for twelve years and came to Portland in the fall of 1932. North Coast Electric Company wholesales in Oregon and Washington a complete line of wiring supplies and devices and distributes Gibson and Norge refrigerators and Universal and N.C. ranges.

▼

¶**W. W. Wheat** for sixteen years with North Coast Electric Co. in Seattle and Portland has resigned to conduct his own business as a manufacturer's agent. He will make his headquarters in the Davis Building, Portland. Mr. Wheat started with the North Coast Electric Co. in Seattle spending five years as store manager and selling on the road. He came to Portland in 1922 to manage the Portland branch. He is succeeded in that position by Verne M. Miller, vice-president North Coast Electric Company. Mr. Wheat starts his new venture with three well-known merchandise lines not in the electric field. He expects to add other lines from time to time, some of which will be electrical so that he will retain his affiliation with the electrical industry.

▼

¶**Ivan L. DeJongh,** at one time southern California district manager for Frigidaire and more recently manager of the refrigeration department of the Westinghouse Electric & Manufacturing Co. on the Pacific Coast, has forsaken the electrical industry. He has opened a Chevrolet agency at 210 North Western Ave., Los Angeles.

¶**Burlingame, Calif.,** in October adopted the standard sales ordinance prepared by the Pacific Coast Electrical Bureau for the control of electric appliance sales. W. H. Medley, prominent electrical contractor of the city, who is a member of the Board of Fire Commissioners, was active in the work of having the ordinance passed. Frank Kiefer of P.C.E.B. also appeared before the city council. Mr. Kiefer has offered his services to any other northern California committee desiring such an ordinance.

▼

¶**Washing Machine Parts Co.** recently moved from 1233 South Hope to a better and larger location at 1241 South Hope, Los Angeles. Table displays of washing machine parts make it easy for dealers and service men to select those required. The company is affiliated with the Los Angeles Washer Exchange.

▼

¶**Harry Inglee** succeeds R. A. Jacobus in charge of sales or radio, Telechron and kindred lines of Hendrie & Bolthoff Co., Denver. Mr. Jacobus recently became manager of the electrical department of May Co. Department Store.

▼

¶**Chanslor & Lyon,** distributors, San Francisco, have taken on the Crosley line, formerly handled by Kierulff & Ravenscroft.

▼

¶**T. H. Shepherd,** illuminating engineer of Bureau of Power and Light, Los Angeles, has just had installed a new sign 4 ft. wide, 85 ft. high, containing 878 lamps, with a neon border in blue, on the face of its building. The sign has a 15-kw. load.

▼

¶**Maywood Radio Electric** Mfg. Co., has moved from 3515 E. Slauson St., Maywood, into the next block, at 3633 E. Slauson St.

▼

### *5,000 Miles Per Month*

*Wilmot Montgomery, of Montgomery Bros. thinks nothing of travel. He covers on the average of 5,000 miles per month from his Spokane headquarters in eastern Oregon, Washington, Idaho, Utah and Nevada, extolling the business opportunities of Chromalox electric range replacement units which his company distributes in the Pacific Northwest*

**DEALER LETTER No. 3**

**PACIFIC GAS AND ELECTRIC COMPANY**

245 MARKET STREET
SAN FRANCISCO, CALIFORNIA

Gentlemen:

Last year during the holiday season nearly 50,000 Electrical appliances were sold in P. G. and E. territory . . a total sales volume of $1,600,000 for November and December alone.

The demand for useful gifts this year will be far ahead of last. The public is insisting on gift merchandise that is practical and thoroughly usable. There is no better way to meet this demand than with a good selection of Electrical appliances.

Irons, toasters, percolators, radios, portable heaters, refrigerators, vacuum cleaners and dozens of other electrical home necessities are coming out with improved mechanical features and beautiful new designs and finishes.

This type of merchandise is sure to appeal to 1933 Christmas shoppers because there is a suitable gift appliance in every price class and because modern appliances are not only attractive but enduring, useful, and long-lived.

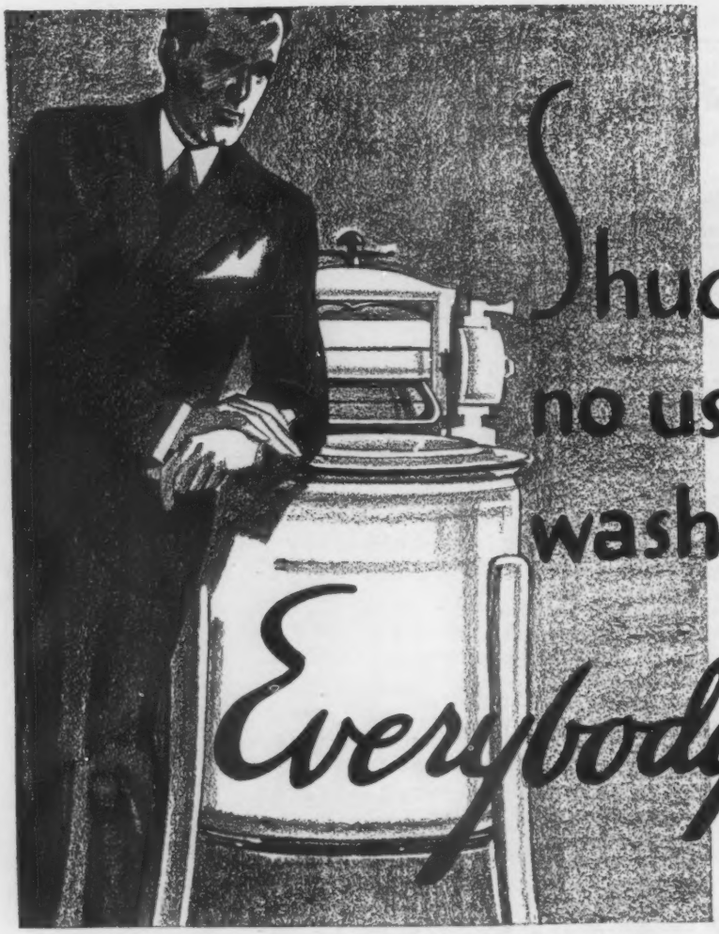
Start early this year with a well rounded program of selling, advertising and display. Let practical-minded Christmas buyers know that YOUR STORE is the place to find the truly welcome gift.

Sincerely,

H. M. Crawford

Gen. Sales Manager

YOUR TIE-IN AD HERE
TELLS PROSPECTS THAT
YOU SELL
THE APPLIANCES ADVERTISED BY
P·G·&E·



# Shucks, there ain't no use trying to sell washing machines

# Everybody's got one!

• It sounds mighty reasonable when you hear it said—"Everybody who can use an electric washing machine has one. There's no more market for washing machines."

• Just like figuring that everybody who wants a watch must have one by now! Statements like these cannot be depended upon. For instance—

• A survey made recently in one of the Edison Company districts disclosed that 60 out of every 100 families did *not* have washing machines . . . that many of the machines in use were old and out-of-date.

• It's easy to forget that there are 6,318 new babies in California every month . . . new reasons for new washing machines. It's easy to overlook the significant fact that every year 7,000 new families move out to California to make their home. It's easy to forget that perhaps half of the washing machines in use are from five to ten years old . . . ready to be traded in on modern, efficient, more economical machines.

• *There is a market for washing machines!* And that goes for all electrical appliances. California's appliance market is represented by its 1,574,960 homes. Let's get busy!

*Edison Low Electrical Rates Help to Sell Every Modern Electrical Appliance*

**Southern California Edison Company Ltd.**

¶ **William Vogel,** president of the Washing Machine Service Supply Co., has announced the appointment of E. A. R. Torsch as promotion and sales manager for the company. "Doc" Torsch has been connected with the firm in the wringer roll manufacturing end of the business for several years. His connection now with the entire service supply organization in a promotional capacity is in line with recent expansion moves made by Mr. Vogel. Mr. Torsch issued a significant statement for the benefit of dealers doing repair business. "Household electrical equipment has been neglected during these depression days. At the first sign of better income the washing machine and vacuum cleaner that have been out of order will get attention."

▼

¶ **McLennan, McFeely & Prior, Ltd.,** has been appointed B.C. distributors for Frigidaire products, according to C. P. W. Schwengers, managing-director. The firm was established almost fifty years ago, and has headquarters at Vancouver, B.C., and branches in Victoria and New Westminster. It is the largest wholesale hardware and electrical house independently owned in Western Canada. J. E. McCormack, for years associated with Frigidaire, has been appointed head of the new department to handle the agency, and G. W. Harbling appointed service manager.

▼

¶ **Coast Electric Supply Co.,** wholesalers of San Diego, Calif., is now managed by a former silent partner, Mr. Sullivan, of the Motor Hardware & Equipment Co. upon the resignation of Ralph Zinke. Frank Munro, formerly connected with the same firm, is now San Diego manager of the General Electric Supply Co.

▼

¶ **Bobo Wholesale Electric Co.** is a newly organized wholesaling house with headquarters at 1677 Venice Blvd., Los Angeles. The firm was organized by S. M. Bobo, who formerly operated a store in South Pasadena. Eventually it will stock a complete line of appliances as well as parts and supplies.

▼

¶ **The Automatic Washer Co.,** of Newton, Iowa, manufacturers of automatic washers and ironers, announce the appointment of Chanslor and Lyon Stores, Inc., of San Francisco, as distributors of Automatic products for northern California.

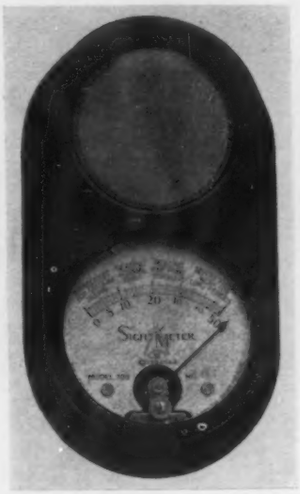
▼

¶ **Radio Supply Co.,** Boise Idaho, has been appointed distributor for Automatic washers and ironers according to an announcement by Roscoe N. Brandt, sales manager, Automatic Washer Co., Newton, Iowa.

▼

¶ **Mongerson's Electrical Machine Works'** listing, page 42, September Electrical West, should have read "Order in Western cities through leading electrical wholesalers."—Correction

# New Lines *You Can Sell*




### *Sight Meter*

Sight Light Corp., New York, has placed on the market a device known as the Sight Meter which measures the intensities of artificial illumination. It is an adaptation of a batteryless photo-electric cell of the Weston type.—Electrical West, Nov., 1933.

▼

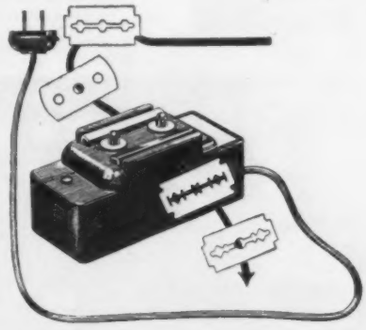
### *Fan Heater*

Montgomery Brothers, San Francisco, have exclusive Pacific Coast sales rights for the Chromalox electric Heetflo which is a 1,000-watt, motor-driven air heater. The heater is 5¾ in. high and 9 in. in diameter. It has a bronze finish. Pacific Coast list price is $11.35.—Electrical West, Nov., 1933.

▼

### *Blade Sharpener*

Humason Mfg. Co., Forestville, Conn., has placed on the market the "Olympic" electric razor sharpener for sharpening perforated type double-edge blades. Magnetic action holds the blade on two fixed magnets while a lapping table makes 60 strokes a second. Five to 10 sec. are required to sharpen a blade. The list price is $2. The sharpener is distributed on the Pacific Coast by the Panama Lamp & Commercial Co., San Francisco.



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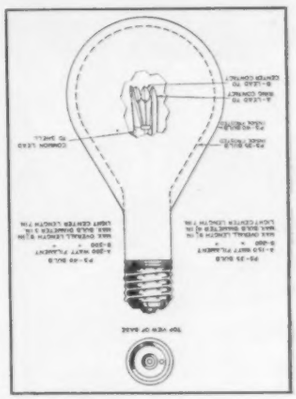
### *New Irons*

Dover Mfg. Co., Dover, Ohio, has revised its entire line of eight electric irons. The new line features new prices, new finishes, new cords and plugs and several other features. Prices range from $8.75 for the 6-lb., high-speed, 1,000-watt automatic iron to $2.50 for the 2½-lb. traveling iron.—Electrical West, Nov. 1933.

### *Two-Filament Lamp*

General Electric Co. Incandescent Lamp Department, Cleveland, has announced a new lamp that provides three different levels of illumination from a single bulb. The new Mazda three-light lamp contains two filaments, each of which may be burned either singly or in combination with the other. At present it is being made in two sizes, one containing 150- and 200-watt filaments and the other, 200- and 300-watt filaments. The lamps are equipped with a mogul screw base which has an additional center contact in order to permit separate control of each filament. A special socket is necessary to accommodate this new base. With the new lamp, three-level illumination can be secured from one set of conventional lighting fixtures by merely changing the socket and installing the necessary additional control. It is expected that it will find its first application in the field of commercial lighting, particularly the small and medium-sized establishments which have definite peaks and low points in volume of store traffic. —Electrical West, Nov., 1933.



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### *Kitchen Ventilator*

National Sales Co., Cleveland, Ohio, has developed a kitchen ventilator with a 4-in. inlet pipe connection to stove or range and a 6-in stub designed to fit into a chimney flue. It is equipped with a motor-driven electric fan of the 60-cycle, a.c. type. The fan is capable of handling 200 cu.ft. of air per minute. The ventilator is made from cold rolled steel and is nickel plated. The face is removable for cleaning. Retail price $12.50 west of the Rockies. Holbrook, Merrill & Stetson, Inc., San Francisco, are Western factory representatives.—Electrical West, Nov., 1933.

# The Month in Pictures

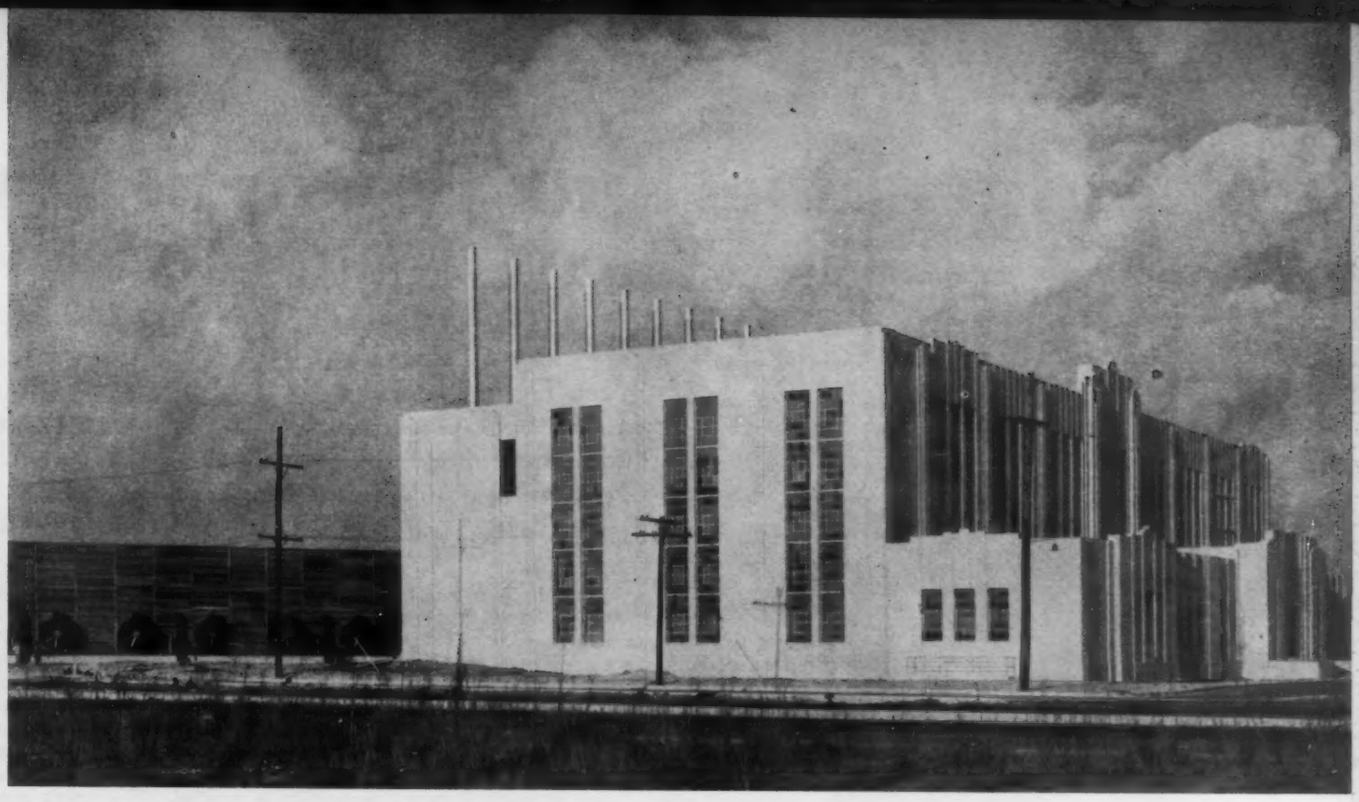
## Commercial and Sales--

*Better Light*

*Palm trees were the first Christmas trees in Galilee, so it was appropriate that Brawley, Calif., in the middle of the desert, decorate its community tree thus last year (upper left). Nut shop in Spokane lighted entirely with architectural built-in units made locally from correct design data (above). Not satisfied with the 22-ft. candle general lighting over meat and delicatessen cases New Central Market, Salt Lake City, had installed a chromium plated metal trough, flat white inside, with 50-watt lamps on 12 in. centers which now gives 75 ft. candles*

*Carnival*

*Movie scenic artists designed the illuminated background for Southern California Edison's booth at Los Angeles county fair, which pictured service from farm home to city skyscraper*



*Architecture has not been neglected in the design of the City of Vernon's new diesel plant, as the view shown above proves. Here are housed five 7,500 kva. generating units which give the plant the distinction of being the first major power station in the U. S. to use internal combustion engines*

# --Engineering and Construction

### *Vice and Versa*

*On the other hand electric drive replaces gas engines in the Santa Fe Springs and Huntington Beach oil fields not far distant. Splash proof, 15 or 25 hp. motors drive through double reduction gears operating the pumps at 14 to 16 strokes per minute; smooth, safe, maintenance-free power*

### *Big Spool*

*American Dredging Co. takes delivery of 12 ft. reel of 11 kv. flexible armored submarine cable from Pacific Electric Motor Co. of Oakland. Length is 3,000 ft., size 250,000 circ. mil., stranded, 3-conductor; composite design of rubber, varnished cambric and rubber hose jacket, without lead; diameter 3.332 in.; weight 40,000 lb. Quite a flexible cord!*

### *Yardstick*

*Another $20 billion "yardstick" of the Federal government will be erected here, at Bonneville, on the Columbia River, 40 mi. east of Portland. Bradford Island splits the river into two channels, one of which will be developed for power; the other for navigation. No irrigation is planned. Two 45,000 kw. units will start what ultimately will mean 540,000 kw. of generating capacity. Work has already begun under Army engineers. Funds come from PWA. Market is yet to be developed*

# Engineering and Construction

*Between the front and rear sections of the station control board this walkway covers a series of shallow metal compartments in which switchboard connections are carried between sections. The metal-clad design is carried out by bringing panel connections up the channel iron uprights to an enclosed terminal strip on each panel (shown at the lower left) and thence, still enclosed in the channel, to the level from which they fan out to relays and instruments*

## Diesels at Vernon

### Modern Design Includes the Use of Large Diesel Prime Movers, Generating and Distribution Power at the Same Voltage, the Exclusive Use of Metal-clad Switchgear and Economic Use of Waste Heat in Exhaust Gases To Produce Distilled Cooling Water

Engineers, not only of the West but of the entire country have watched with interest the construction and operation of the new generating station for the City of Vernon, Calif. Primarily of interest because large diesel engines are used for the first time in the U.S. as prime movers in a major central station, the plant embodies many features of advanced engineering practice.

The present installation of 35,000 kva. is comprised of five 7,500-kva. units. Each unit consists of a 7,000-b.hp., eight-cylinder, double-acting two-cycle, 167-r.p.m. diesel engine, direct connected to a 7,500-kva., 0.8 power factor, 7,200-volt, 50-cycle Allis-Chalmers generator. The engines, built by the Hooven, Owen, Rentschler Co., are the largest now in stationary service in the United States. They are of the solid injection cross-head type, which, with an eight-cylinder engine, provides the exceptionally smooth flow of sixteen-power impulses per revolution, delivered to the crank shaft. These engines have cylinders 24 in. in diameter, with a piston travel of 36 in.

Units are designed for minimum operating and maintenance cost. The cylinder block is separate from the crank-case housing, cylinders for each engine being in two groups of four in line, with fuel pumps and other auxiliaries for each cylinder correspondingly segregated.

Pistons are made up in four parts, the upper end being a steel forging and the lower a steel casting. These two sections are bolted to a shoulder on the piston rod, a cast-iron guide ring with a skirt to fill the space between the two sections being bolted in between. The pistons carry five angle-jointed standard rings on each end, two of which are of the oil control type. Pistons are internally water cooled, the water entering and leaving through telescopic lines which terminate at the bottom of the piston rods.

In a double-acting engine each piston receives a power impulse on both the up and the down stroke. The upper side of the piston is of the conventional design with fuel oil sprayed in at the top through a single fuel oil valve. Fuel injection on the lower side of the piston is necessarily complicated by the presence of the piston rod. On the lower side, fuel is injected through two fuel valves, which direct the oil spray away from the piston rod so as to reduce corrosion and equalize temperatures over the piston area.

A double row of scavenging and exhaust ports are provided in each cylinder, the exhaust ports being placed between the cylinder head and the scavenging air ports. Scavenging air, under 2 lb. per sq.in. pressure, is forced through the scavenging air ports, sweeps across the cylinder, flows upward toward the cylinder head, across the latter and down to the exhaust ports. Because impulses occur at both top and bottom of the stroke there is no necessity for high inertia parts so that the fly-wheel, usually associated with large reciprocating engine units is absent from this installation, the necessary $WR^2$ for smooth operation being incorporated in the generator rotors.

A two-piece construction is employed in the design of the cylinder heads. The inner section which is exposed to the heat of combustion is of cast steel with passages for the necessary cooling water. Two liners are inserted in each cylinder block, one for each end of the piston. A cast-iron cover is bolted over the cast steel assembly.

Maintenance charges should be small; cylinders are arranged so that liners can be replaced when necessary in 15 hours. Piston rings, of which there are ten in each cylinder, also can be replaced periodically at the cost of $3 to $4 each.

The piston rod, actually a small-scale extension of the piston itself, passes through a packing gland at the bottom of the cylinder and into the lower half of the engine where the conventional crank pin, connecting rod, crank shaft assembly is located. The crank shaft assembly is isolated from the cylinder block, so that the lubricating oil in the former cannot be contaminated by carbon from waste gases or diluted with unburned oil.

The lubrication system is divided into two parts, one for the cylinders, and the other for the crank case assembly. Each of the eight cylinders on each engine has lubricators supplying twelve feeds. Six deliver oil to the upper section of the cylinder, four to the lower section of the cylinder and the remaining two lubricate the piston rod on its downward stroke. Lubricators are of the direct-acting type and timed to deliver oil at predetermined points on the piston's travel.

Each engine is provided with an individual crank case oil system, consisting of a 200-g.p.m. motor-driven gear pump, a centrifugal filter, two edge-type filters, an oil cooler and a sump tank. The lubricating oil passes on a continuous cycle through this equipment to the engine-driven lubricating oil pump which forces the oil through the moving parts of the crank case assembly and from which it returns by gravity to the sump tank.

#### Fuel Oil System

From two storage tanks holding 15,000 and 9,500 bbl. of oil, respectively, fuel oil is pumped through centrifuges to the day tanks located on the roof of the main structure, each unit having its individual day tank. Fuel is delivered from the day tank by gravity to the injection pump which is of the bypass-control, counter-stroke type. The amount of fuel forced through the discharge valve depends upon the setting of the bypass valve, in turn depended upon and actuated by the control shaft of the oil servomotor. The latter is a small reversing field d.c. motor under the control of the engine governor. Fuel oil is forced into the cylinder at 10,000-lb.

# of the Month

*Generating room of the Vernon station showing the arrangement and size of the units. Engines are of the two-cycle, double-acting type, rated 7,000 brake hp. and drive 7,500 kva., 167 r.p.m., 7,200 v., 50-cycle generators*

per sq.in. pressure to insure complete vaporization of the spray. Compression pressure is approximately 445 lb. per sq.in. at a temperature of 1,100 deg. F. and a combustion pressure of 690 lb. per sq.in.

### Scavenging Air System

Each diesel engine in this plant requires approximately 27,000 c.f.m. of air at rated capacity. This air is provided through five air washers, located on the roof of the plant, and five blowers, each located adjacent to the engine it supplies. Blowers, driven by 400-hp., 3,000-r.p.m. induction motors, draw the air through the washers and force it through the ports in the cylinder walls. As each cylinder of a double-acting engine exhausts above and below the center scavenging ports, two exhaust manifolds per engine are required. Under normal operating conditions, the waste gases and scavenging air exhaust at temperatures ranging from 525 deg. to 625 deg. F.

### Cooling System

In addition to a complete water jacketing of the cylinder blocks of these engines, the pistons and rods are water cooled. Experience has shown that impure cooling water will form a scale on the inside of water jackets and pistons, an extremely undesirable situation which reduces efficiency and increases maintenance costs. To obviate any possibility of such occurrences in this plant, an unusual cooling water system has been installed, in which distilled water, produced as a byproduct of the engine operation, is circulated through the cylinder jackets and piston cooling water passages.

Distilled water is produced by utilizing waste heat in the exhaust manifold of the engines. As the engines exhaust at both top and bottom of the cylinder, two exhaust manifolds are necessary, each of which terminates in individual waste heat boilers of the fire-tube type, which also supplement the standard mufflers. Heat from the exhaust gases thus is utilized to generate steam in a conventional double-effect evaporator system, the steam being condensed to produce pure distilled water which is used for a cooling medium in the engines.

The cooling water system is of the double-circuit enclosed type. In one section the distilled water circulates in a closed system, consisting of a closed concrete reservoir, one side of the heat exchangers, circulating pumps and water jackets of the cylinders and pistons. Each engine is provided with two centrifugal pumps driven by a common motor. One pump supplies cooling water for the cylinders and lubricating oil coolers and the other the cooling water for the pistons and generator air coolers. After passing through the system the water returns by gravity to the heat exchangers located at the rear of the plant and then into the storage reservoir.

In the heat exchangers, the distilled water gives up its heat to raw water which also is in a closed circulating system, consisting of the heat exchanger, pump and cooling tower. Heat removed from the engines thus passes from the distilled water system into the raw water system at the heat exchanger and is eventually dissipated in the raw water cooling tower. The cooling towers are the forced-draft type, sectionalized to conform to the unit scheme of operation which characterizes the plant design. Each section is designed to dissipate the 17,170,000 B.t.u. power removed from one engine and its accessories.

### Test Data on Engine Operation

The following tabulation will give an idea of the characteristics of these engines:

| Load | 1/2 | 3/4 | 1/1 |
|---|---|---|---|
| Mean speed, r.p.m. | 168.8 | 168.9 | 168.2 |
| Indicated horsepower | 4199 | 6016 | 7804 |
| Brake horsepower | 3517.5 | 5207 | 6864 |
| Power absorbed by blower hp. | 338 | 338 | 338 |
| Net horsepower | 3179.5 | 4869 | 6526 |
| Ratio blower power to net power | .107 | .0695 | .0518 |
| **Fuel** | | | |
| Total per hour, lb. | 1220 | 1807 | 2498 |
| Per indicated hp., lb. | .291 | .305 | 320 |
| Per brake hp. lb. | .347 | .347 | .364 |
| Per net brake hp., lb. | .384 | .371 | 383 |
| Cyl. cool. water, g.p.m. | 547 | 600 | 630 |
| Piston cool. water, g.p.m. | 325 | 330 | 356 |
| **Temperatures** | | | |
| Water inlet, deg. F. | 94 | 95 | 99 |
| Cyl. water outlet, deg. F. | 110 | 114 | 125 |
| Piston water outlet, deg. F. | 110 | 114 | 122 |
| Exhaust gases, deg. F. | 312 | 419 | 582 |
| Turbo-blower inlet, deg. F. | 82 | 81 | 80.5 |
| Engine air inlet, deg. F. | 109 | 110 | 111 |
| Barometer, inches of mercury | 29.60 | 29.65 | 29.63 |
| Scavenging air pressure, lb. | 2 | 2 | 2 |
| Weight of exhaust gases, lb. per hr. | 115256 | 116311 | 117002 |
| **Exhaust Gases** | | | |
| $CO_2$, per cent | 2.3 | 3.6 | 4.8 |
| $O_2$, per cent | 18.1 | 16.6 | 14.8 |
| CO, per cent | 0 | 0 | 0 |
| N, per cent | 79.6 | 79.8 | 80.4 |
| Mechanical efficiency, per cent | 84 | 86.5 | 87.8 |
| Total efficiency, per cent | 36.1 | 37.5 | 36.3 |

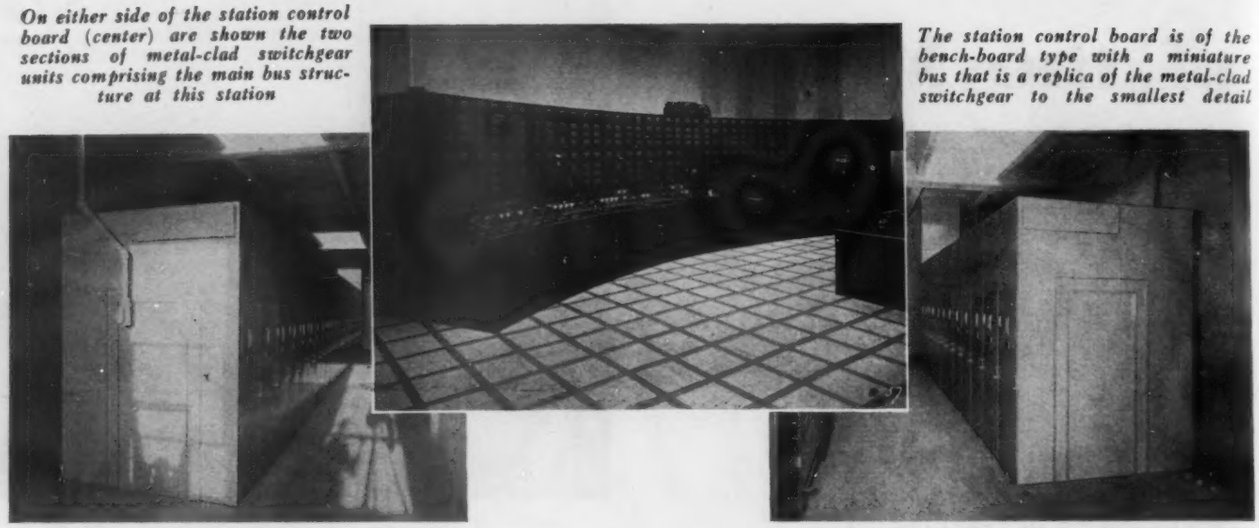
On the basis of full load operation with an efficiency of 36.3, the heat allocation resulting from fuel combustion is estimated to be as follows:

| | B.t.u. | per cent |
|---|---|---|
| Engine shaft (net hp.) | 16,500,000 | 36.3 |
| Cooling water | 11,800,000 | 26.0 |
| Exhaust gases | 15,400,000 | 33.7 |
| Friction, radiation, etc. | 1,800,000 | 4.0 |
| | 45,500,000 | 100.0 |

### Engine Control

Control for the engine units is provided by individual three-panel, engine-control boards, installed directly behind each engine in the generating room. On one panel are mounted the push-button switches for starting the auxiliaries for that particular engine. By using magnetic control for all auxiliaries it was possible to arrange the pushbuttons in a group so that the operator, in starting the unit, presses successive "start" buttons in the logical sequence from left to right and top to bottom. By the time the last button is pushed valves have opened, pumps and blowers have come up to speed and

*On either side of the station control board (center) are shown the two sections of metal-clad switchgear units comprising the main bus structure at this station*



*The station control board is of the bench-board type with a miniature bus that is a replica of the metal-clad switchgear to the smallest detail*

the whole unit is ready to go on the line, the operation from a cold start taking less than 2 min. In addition, the remaining panels mount the upper and lower cylinder pyrometers, water temperature and pressure indicators, essential to efficient operation. One unusual item is the use of a teleindicator on each control panel to relay commands to the engine room from the station control panel. This device is similar in operation to the conventional engine room telegraph used aboard ship.

Compressed air for starting is contained in a bank of ten steel bottles, located in the west end of the generating room. Each bottle contains 36 cu.ft. or sufficient air for ten "starts," and a high-pressure, three-stage, motor-driven air compressor automatically maintains this compressed air reserve. In addition, a twelve-cylinder, 1000-r.p.m., 600-hp. Winton high-speed gasoline engine unit arranged for quick start is direct connected to a G-E 500-kva., 0.8 power factor, 2,300-volt, three-phase, 50-cycle generator with direct-connected, 4-kw., 250-volt exciter for emergency starting. This unit is of sufficient capacity to start a scavenging blower with the necessary water circulating pumps essential in the diesel engine's operation.

Five units are now installed in the engine room, the present building being designed to accommodate two additional units without change. A temporary wall at the east end of the building makes further expansion possible for an ultimate of ten engines. Auxiliary pumps and blowers are installed at the rear of the engine room. Auxiliary pumps are grouped according to the function they perform and, in most cases, it is possible to interchange pumping units so that the circulating water or fuel supply for one unit can be obtained through the corresponding pumping unit of any other engine unit.

### Load and Frequency Control Installation

After a generating unit is up to speed and placed on the line, the engine governor takes control of its operation. The governor is of fly-ball type and operates to change the setting of the fuel bypass valve. To maintain a flat speed characteristic from low load to full load and thus eliminate frequency drops with load changes, complete Leeds & Northrup automatic load and frequency control equipment has been installed. The load and frequency control instruments send corrective impulses to the governor synchronizing motor in the proper direction to increase or decrease the compression of the governor spring and thereby maintain the correct operating condition on the particular unit under control.

In the load and frequency control installation, there is one master frequency controller for all units. Any unit can be placed on frequency control by operation of the unit's selector switch and that unit then operates to maintain correct instantaneous frequency. Each unit has a load controller which operates on that unit for load control either by assisting with frequency regulation on proportionate load distribution or by maintaining a fixed load on base load control at some predetermined point, such as the maximum efficiency unit load.

In adapting automatic load and frequency control to diesel engine operation, it is interesting to note that greatest advantage can be taken of the fact that changes in governor settings on the diesel engines produce a rapid response in the feed change of the machines. This is in contrast to the governing of hydro units where the inertia of water must be taken into consideration.

### Electrical Installation

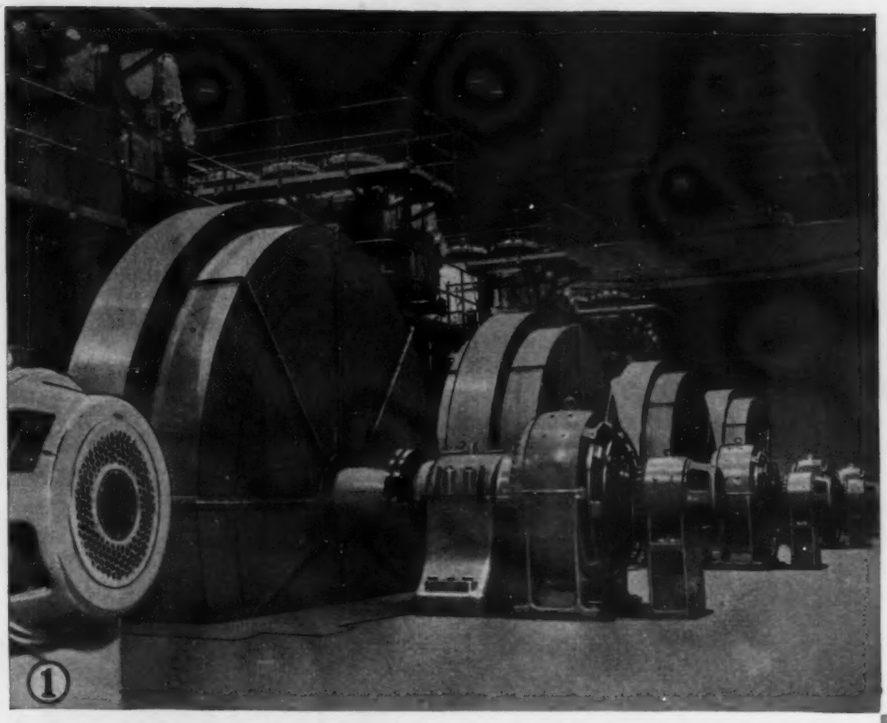
In the design of this station full realization has been made of the advantages of metal-clad switchgear equipment. The main 7,200-volt switching center is a group of 36 Delta-Star switchgear units installed in two switch-gear rooms paralleling the engine bay and separated by the station control room. A metal-clad double-bus structure is extended over the ceiling of the control room for connecting the two groups of gear together through sectionalizing switches. The switchgear is of the double-bus arrangement with 24 units being installed in the west bay and 12 in the east bay. Provision has been made for installing additional units in the east bay as load conditions require. The switchgear cubicles carry the unit assembly idea characteristic of the plant with five main and five reserve bus switchgear units connecting the leads from that number of generators to the double buses.

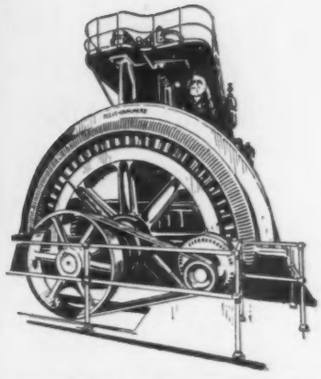
Sixteen feeder cubicles are interspersed in groups of four between generator units. The remaining twelve consist of station auxiliary transformer bank, bus ties and bus sectionalizing units. All switchgear units are designed with an interrupting capacity of 250,000 kva. at 15,000 volts.

The double-bus arrangement plus the ability quickly to remove and replace individual switchgear assemblies make both for greater reliability of service as well as rapid restoration of power in case of emergency.

In addition to the main 7,200-volt switching assembly, two other metal-clad groups furnish 2,300-volt and 460-volt station auxiliary power, respectively. By using the metal-clad combination the exposed bus is entirely eliminated with the consequent improvement in operating and maintenance conditions and the increased safety to operating personnel.

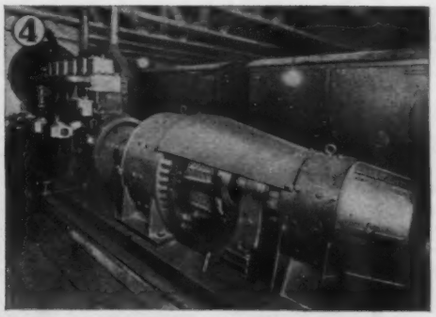
Complete remote control for the plant is embodied in a 21-panel, semi-circular, ebony asbestos control board of the combination bench and vertical type and a full height relay board mounted back to back with an aisle space of 4 ft. 6 in. between. The bench board is provided with chrome metal miniature buses and disconnecting devices giving a complete replica in every detail of the metal-clad switchgear connections. The grouping of panels corresponds with the arrangement of the switchgear units previously described. Mounted on the generator panels, in addition to the usual indicating instruments and control switches, are the engine room signal transmitters and in-

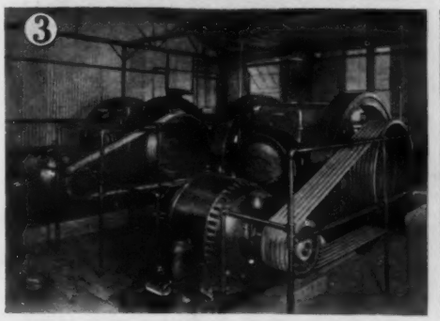


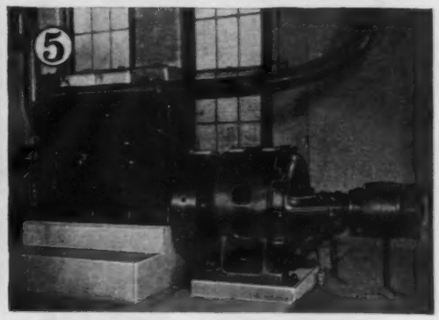


# GENERATORS

## *for* Internal Combustion Engines ... All Types ... All Capacities







1. The Largest Diesel Engine Driven Generators in America. Five 7,500 kva, 50 cycle, 167 rpm Allis-Chalmers Generators with main and pilot exciters on Hamilton Diesel Engines, City of Vernon, California.

2. The Largest Gas Engine Driven Generators in the World (in the foreground) rated 6000 kw, each. More than 155,000 kva in 47 Allis-Chalmers gas engine-generator units are installed in the Chicago area.

3. Small Generators driven by gas engines through Texrope Drive.

4. Internal Combustion Engine Generator unit for rotary oil well drilling and pumping.

5. Generator direct-connected to a Diesel engine.

*Information furnished on request.*

**ALLIS-CHALMERS**

Allis-Chalmers Manufacturing Company, Milwaukee

# Metal-Clad Switchgear—at the Vernon Diesel Plant

## Probably No Diesel Installation in This Country Has Attracted More Interest and Comment Than the Vernon Installation as the Five Seven Thousand Horse Power Engines Are the Largest Diesels So Far Built in This Country and It Is Planned to Install Five More

To avoid extensive future changes, the main bus and switchgear were designed for an ultimate generating and tie line capacity of 75,000 K.V.A. The present switchgear installation consists of thirty-six 15 K.V. units operating at 7.2 K.V. controlling generators, feeders, station auxiliaries, etc.; twelve 7.2 K.V. units operating at 2.3 K.V. and five 7.2 K.V. units for generator neutrals—a total of fifty-three.

### SWITCHGEAR UNITS

These consist of two parts, a stationary element with busses and accessories, and a removable oil circuit breaker element of the vertical lifting and lowering type. These elements are housed in a rigidly braced, welded structural steel supporting frame with steel enclosure having removable rear panels. The front has a recessed door of formed stretcher-level steel hung on concealed hinges, the door being flush when closed.

The circuit breaker lifting and lowering device is a self-contained mechanism, of the wormgear "jackscrew" type complete with guides, locking bars and suitable support, automatically positioning the breaker for engaging primary and secondary disconnectors when raised. First wheeled into position by a transfer truck, it is raised to engage the breaker head lugs. The truck is then removed and the lifting operation completed. Lifting and lowering may be either by hand wheel or a portable electric drill motor.

### SAFETY FEATURES

Automatic insulating shutters prevent accidental contact with plug disconnectors connected to the bus. They cover live studs when the breaker is lowered and uncover as raised. On a double bus arrangement with transfer plugs the shutters uncover studs of the pre-selected bus and cover studs of the other bus when the breaker is raised, preventing breaker connection to the wrong bus.

### BUSSES AND CONNECTIONS

The three-phase bus with its supports, taps and stationary ends of the plug disconnectors with their insulating bushings is assembled before installation and easily removed as a unit. The bus is supported by semi-floating insulating barriers with laminated copper taps, pressure welded to the bus. This allows for expansion and contraction, eliminating expansion joints. The bus ends are silver plated and with their bolted connections between silvered splice plates insure permanently high conductivity.

### BUS INSULATION

The main bus insulation including pressure-welded tap joints, is of "Lamphenite," a laminated paper insulation wrapped under tension. Each layer is coated with phenolic varnish, then solidly pressed and cured in heated molds, eliminating voids, looseness, warps and cracks.

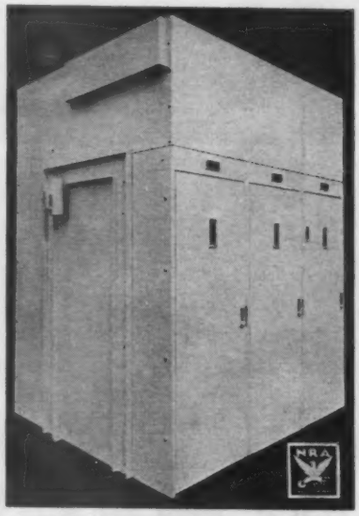
### Primary Plug Disconnectors

These are "multi-contact" of the point pressure type, well ventilated and self-cleaning, utilizing silver-to-silver surfaces to prevent heating due to oxidation. The female member mounted on the O. C. B. studs of the removable element consists of hard drawn copper wires die-pressed into a solid copper stud. The contact ends of the individual wires are so formed that each make two definite point contacts with the male member. Predetermined contact pressure is maintained by coiled springs surrounding the assembly.

The stationary male member, a part of the bus assembly, is a solid insulated silvered copper stud, pressure welded to the bus tap. Because this simpler part of the contact requires but casual inspection, it is placed in the least accessible part of the gear. The more complex female part on the removable element is readily accessible when the breaker unit is lowered. Contact inspection may be made without de-energizing the bus.

Bushings for insulating the stationary disconnectors are of "Lamphenite," with a long-fibre asbestos base filler. Electrically, this material equals porcelain and for bushings its high dielectric and mechanical characteristics make it very desirable.

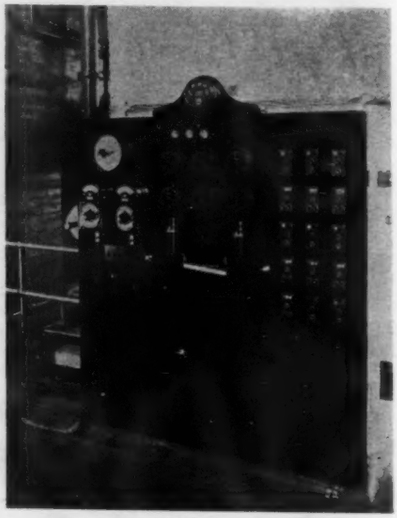
This Metal-Clad Switchgear, one of the largest installed on the West Coast, was designed, built and installed by the Delta-Star Electric Company, Chicago, Illinois.



A corner showing the simple straight lines of this modern Metal-Clad Switchgear.

dicators and the four-position frequency control switches for selecting and setting the unit load controllers of each generator for any predetermined base load, proportionate load or automatic frequency control setting desired. On the center section of the control board are mounted the control switches and indicating instruments for the station auxiliary transformer banks, bus sectionalizing, bus-tie and auxiliary generator units.

On the rear relay board are mounted the relays, load and frequency control instruments, frequency, voltage and station load recorders and quick response rheostatic type voltage regulators. Each generator is protected by both over-current and differential relays while the outgoing feeder circuits are equipped with over-current relays only.



*Control boards are provided for each engine. Diesel units are each equipped with a complete of auxiliaries which are controlled from the group of push buttons located on the right*

On the operator's desk are mounted a generator temperature alarm panel with indicating lights and alarm reset switches and a short wave radio set connection through which a Warren master clock in the room is checked twice daily by time signals from the U.S. Navy station at Arlington, Va. In conjunction with the frequency control equipment of this station, a meter mounted on the top of the central panel of the central board indicates the accumulated time error of the system from standard time. The frequency control apparatus is so arranged that corrections can be made either manually or automatically through the master clock. Operating conditions indicate that frequency can be regulated in this station well within the limits of plus or minus one-tenth of a cycle and system time to within plus of minus 0.2 sec. of pendulum time.

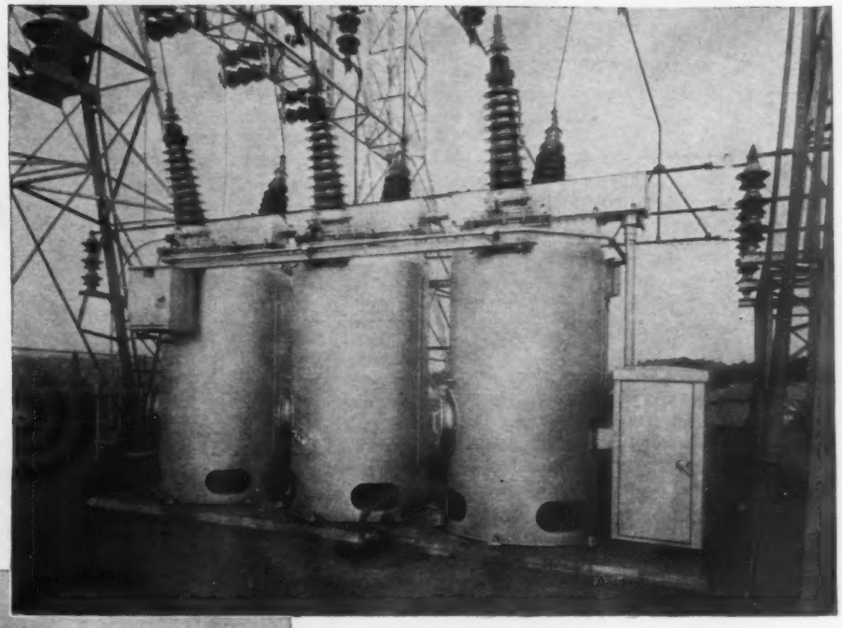
### Distribution System

The distribution system is unusual in the fact that the unit idea has been

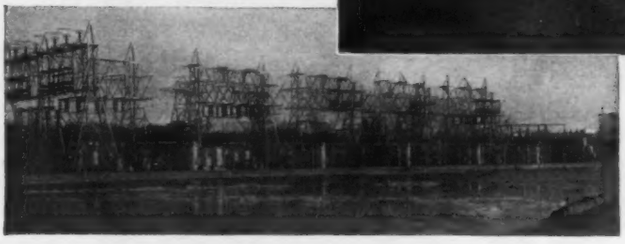
(Advertisement)

# 34 Shorts Cleared in 65 Minutes

## by this G-E Oil-Blast Breaker



Type FHKO-239 oil-blast breaker at Cabot Station, rated 115 kv., 600 amp., and 1,500,000 kv-a.



A severe sleet storm, early last spring, threatened to disrupt service on the Cabot-Pittsfield line of the Turners Falls (Mass.) Power & Electric Company. It might have done so but for the performance of an oil-blast breaker protecting the line at the Cabot Station. This breaker successfully cleared 34 shorts in 65 minutes — one every two minutes.

Of course, there was no time for inspection or maintenance. A routine inspection, made some time later — after the breaker had interrupted several more shorts—showed that the oil-blast contacts were still in good condition and able to give much more service.

At various times before the storm the breaker had opened 8 shorts, so that in all, 44 shorts, varying from 400,000 to 1,115,000 kv-a., were cleared without any maintenance, or change of oil; and the breaker was still in condition to carry its full rated current and interrupt its full rated kv-a.

This is a typical example of the excellent performance of oil-blast breakers. You can obtain similar results by modernizing your old G-E breakers with the oil-blast construction. You will get greater interrupting ability, faster operation, and decreased maintenance. Ask our nearest sales office for detailed information applying to the modernization of your breakers. General Electric, Schenectady, New York.

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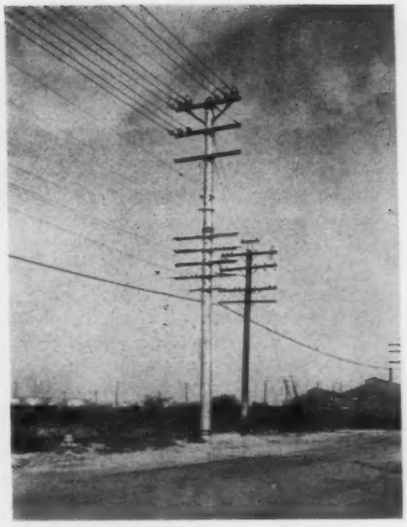
carried out even to the distribution feeders. At the present time sixteen feeders take power from the plant into the consumer area. Each of these feeders is designed for a maximum capacity of 3,500 kw. which at the distribution voltage of 7,200 volts requires that each feeder be capable of handling 300 amp. Within the plant itself, generating units and switchgear have been designed for a capacity of 400 amp. so that the pitting, corrosion, and misalignments of contacts to be expected after a period of use will not reduce the carrying capacity below the required minimum. Engineering features involved in the design of the distribution system are not ordinarily encountered in the usual central station practice inasmuch as the aera to be served is definitely limited by the corporate limits of the municipality to 4 sq.mi. The problem therefore became one of serving not an increasing area but of caring for increasing density. Inasmuch as the plant is located at both the electrical and geographical load center of the city, feeders are relatively uniform in length and the regulation likewise is very similar, permitting all regulating to be done on the station bus.

The following factors affected the choice of the proper distribution voltage:

1. The area to be covered by the distribution system is small, being less than 4 sq.mi.
2. Very little probability of this area being extended.
3. Generating station located in approximately the center of this area.
4. The area served is entirely industrial and does not have any high-class residential or commercial section.
5. The preponderance of industries are small inasmuch as 85 per cent have connected loads of less than 500 hp. and 60 per cent of less than 75 hp.
6. Future growth of this area in all probability will be small industrial.

In consideration of these conditions, 6,600 volts was selected for both distribution system and generator voltage. Factors contributing to this selection were:

1. By proper control of the generating station voltage, the voltage regulation to the consumers most distant from the generating stations should not exceed 5 per cent.
2. The circuits can be worked on and maintained while energized, thus avoiding duplicate circuits.
3. The state law requirement for clearances is less for circuits of less than 7,500 volts.
4. Distribution transformers, in the sizes required for serving the consumers in Vernon, will cost approximately 16 per cent less for a voltage of 6,600 than for voltages of either 11,000 or 13,200. Protection for transformers, (cut-outs, fuses, etc.) is very much cheaper at 6,600 volts than at the higher voltages and very complete distribution equipment can be purchased for circuits under 7,500 volts.
5. The cost of poles and fixtures and line insulation are less at 6,600 volts.



*Distribution circuits, in reality primary feeder circuts, are brought underground to four tubular riser poles*

6. The economy of copper at either 11,000 or 13,200 volts is more than offset by the cost of duplicate circuits and the more expensive construction.

Feeder circuits leave the metal-clad bus and are carried to a cable tunnel which runs longitudinally outside the plant. The roof of this tunnel is arched so that cables may be carried across to the other side without damage from short radii bends and run along either side of the tunnel to the manholes at each end.

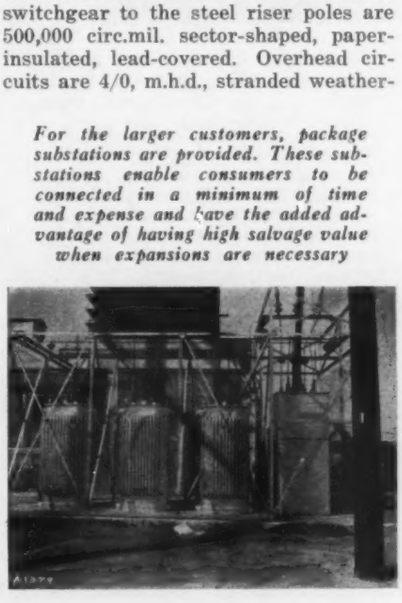
From these manholes the feeders are carried to a tubular riser pole where they emerge into overhead circuits. At the present five riser poles are installed, each carrying from two to four feeders. Riser poles are designed for a maximum of six circuits each, and the city's plans contemplate additional riser poles as the increasing loads may demand. The feeder cables from the metal-clad switchgear to the steel riser poles are 500,000 circ.mil. sector-shaped, paper-insulated, lead-covered. Overhead circuits are 4/0, m.h.d., stranded weather-proof wire extending to the load centers where they connect to the branch primary circuits. Full length, treated creosote poles are used for the distribution circuits. Pin-type insulators, having a 9-in. leakage surface, are used with two 8¼-in. disc insulators for deadends. The use of this size insulator on a 7,200-volt circuit was prompted by experience gained in operating in southern California in an industrial district having considerable quantities of dust and conducting material and subject to ocean fog. The larger size insulators are expected to save their additional cost many times over in reduced outages due to flashovers and the lack of necessity for frequent insulator washing.

Fully treated crossarms are used having a cross-section of 4 2/4 in. x 3 3/4 in. x 11 ft. 2 in. long, providing a 36-in. climbing space and an 18-in. conductor spacing which reduces hazards both to personnel and equipment.

Large individual consumers are served through a standardized consumer substation consisting of a circuit breaker housed in a weatherproof cabinet with entrance bushings arranged for either overhead or underground feed and three transformers of the necessary capacity. This equipment is enclosed in a 10-ft. wire fence supported by angle irons which are carried up to provide the terminal structure for incoming and outgoing circuits. The use of these standarized consumer substations makes it possible to connect up new customers within a minimum of time and expense and permit the 100 per cent salvaging of the distribution equipment when conditions require replacement or changes.

The design and construction of this plant and system was under the supervision of the city engineer, Howard McCurdy; Wayne N. Johnson, electrical engineer and Carl A. Heinze, consulting engineer.

*For the larger customers, package substations are provided. These substations enable consumers to be connected in a minimum of time and expense and have the added advantage of having high salvage value when expansions are necessary*



## Vancouver, B. C., Lights Ball Park

Con Jones Park, at the east end of Vancouver, B. C., was turned into the best lighted night field in Canada, last month, when W. C. Murrin, president of B. C. Electric Railway Co., switched on, one after another, the banks of units mounted on the nine wood structure towers, containing 272 kw. of lighting. Designed by the lighting department of Canadian General Electric Co., and installed by C. H. E. Williams Co., Ltd., electrical engineers and contractors, Vancouver, the installation consists of 62 open floodlights, each with two 1,500-watt inside frosted lamps, 33 closed units with 1,000-watt clear lamps, and 28 200-watt inside frost lamped units. Glare was reduced to a minimum by use of the inside frost lamps, and by mounting height of 90 ft. Intensities on the field, for baseball, are 25 footcandles on the infield, 18 on the outfield, and 13 for football.

# Contractor Develops Underground Idea

*Special truck for street lighting and floodlighting work, with extension ladder and provisions for tools and safety belt*

UNDERGROUND construction is no new thing in itself, but sometimes a new wrinkle or two is developed to offer advantages either of installation or operation. For the underground power system at the new Hamilton Field, U. S. Army bombing base near San Rafael, Calif., Lloyd Flatland, manager of the Globe Electric Works, San Francisco, incorporated several.

After the trench was dug by a trenching machine, pre-cast concrete "chairs" were placed in it to support the soapstone duct at each joint, as well as to provide a means of pouring the enclosing concrete in one operation. Thus supported, the duct could be stood upon by the men while spreading the concrete. Concrete was delivered in a transit mixing truck which drove along the edge of the trench and which slowly poured the mix into the trench while four men distributed and leveled it. The consistency of the mix was such as to flow readily so as to fill up under the duct. Not over ¾ in. rock was used in a 5½ sack mix.

A stout cord was drawn through each duct as it was laid, later to be used to draw through the steel fish cable for pulling conductors. A bare neutral wire of the same capacity as the largest conductor on the primary distribution system was laid on the bottom of the trench underneath the concrete "chairs." This bare conductor was kept isolated from the other conductors. Mr. Flatland's experience in replacing primary distribution cables where the neutral was pulled in alongside the lead cable has shown that insulation and color of the copper indicate that often such conductors are subject to great heat, probably due to stray grounds. This isolated conductor is also used to complete the bonding of the various buildings. In each manhole a paragon-type ground cone was embedded in a loose rock fill holding moisture coming from the manhole. This cone was connected to the neutral conductor.

Manholes were constructed by the use of portable forms built up of 5-ply wood, used because it was light, and accurately dimensioned, with large, clean surface, making possible a convenient arrangement of inserts for anchoring the various equipment later installed. A special beveled corner feature on the forms was developed by Mr. Flatland to facilitate stripping of the forms.

Duct entrances were likewise pre-cast in blocks, set and adjusted to the proper height to conform with the ditches by suspending them from two wires from the top of the form. Thus the pre-cast blocks could be raised or lowered between the forms to the proper height. Again the concrete was transit mixed, a six sack mix. The floor was poured first. Then the sides after the forms had been set up on the edges of the floor. When the sides were stripped, the top was poured separately. Thus cracks due to expansion and contraction were reduced to a minimum.

*Partly filled trench showing "seats" upon which the lengths of duct rest. When concrete is poured these "seats" become part of the concrete protection to the duct*

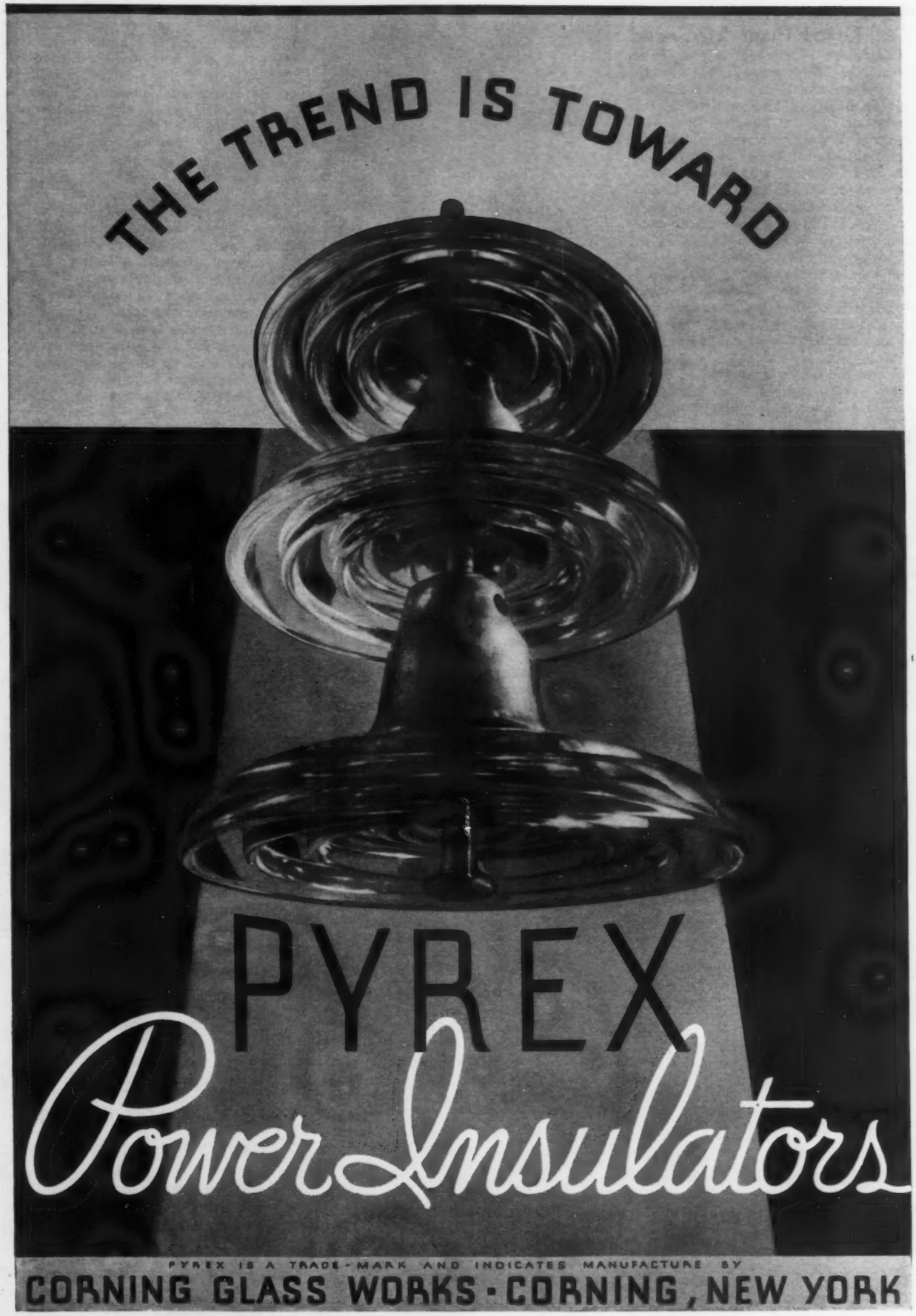
*Inside a manhole, showing pre-cast concrete duct entrances, the neutral wire, stout cords in ducts used later to draw through the cable pulling steel, and cast-in lugs for mounting equipment*

*Main switchboard in the Hamilton Field substation*

Both faces of the duct entrance blocks were beveled. Inside the manhole a neat face was thus made, and on the duct side proper clearance allowed the duct to be brought in at any angle. The apperture was filled in with concrete around the ducts at the time of the trench filling. In all there were 5 manholes 6x8x8 ft.; 4 manholes 4x6x4 ft.; and 11 manholes 4x4x4 ft. There was 18,000 ft. of soapstone duct laid in the power distribution system on Hamilton Field.

The contractor also built the substation and meter house buildings where the P.G. and E. Co. brought in 11,000 volt lines to a bank of transformers on an outdoor platform fenced in at the rear. The 4,000 volt Y-connected power on the secondary side is handled by the main switchboard inside the substation. An astronomical time clock is installed to turn on and off the street lighting.

An exceedingly handy tool in the street lighting installation was the special truck designed and built by Globe Electric Works for that purpose and used on the Hamilton Field installation. It is used to set up the standards, adjust lights and reflectors, mount tops and do repairs. Compartments on each side hold parts and tools. A ladder, rugged in construction, unfolds and extends up to a maximum of 40 ft. straight up. When traveling it is designed to fold over and rest across the top of the truck so that no part projects to interfere with traffic. Swinging freely from the top rungs is a metal box for tools. A metal loop to be used as a safety belt by a workman, if need be, is also provided. The truck is economical to operate and can get into places where ordinary truck equipment could not go.


THE TREND IS TOWARD
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## Moisture Content of Dried Fruit Measured

Adaptation of the principle of the Wheatstone bridge whereby the electrical conductivity of a sample of dried fruit is measured has resulted in the development of a simple device by the Dried Fruit Association of California which determines the moisture content of dried fruit within 1 per cent of the exact value.

Two types of instruments have been developed. The audible method uses ear phones to determine the point at which current flow is balanced and the other uses a micro-ammeter and hence a visible method for making the same determination. The ammeter-type instrument utilizes 110-volt a.c. while the audible equipment operates from dry cells.

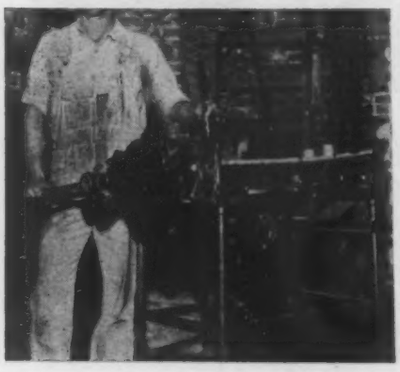
To use the device a sample of dried fruit is ground and pressed into a small Bakelite cylinder with open ends. The cylinder is placed between the electrodes of the machine. With the current on, a potentiometer dial is adjusted until the hum in the ear phone is a minimum or the micro-ammeter reads zero. Temperature of the sample is taken by inserting a thermometer into the top of the cylinder and moisture content is determined by referring the temperature and potentiometer reading to a simple table.

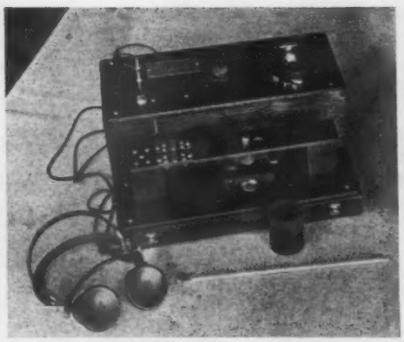
Patents on this device are held by the Dried Fruit Association of California, by whom the machine is manufactured and sold at cost, which is approximately $60.

▼

## Fast Pipe Thread Cutter

This simple machine made by C. L. Lewis, C. L. Electric Co., Pocatello, Idaho, saves much time and heavy manual labor, either in the shop or on the job. A revolving chuck is mounted on a bench and is driven by a small motor. The pipe to be threaded is passed through the chuck from the rear and the clutch jaws tightened. When the motor is started, and the pipe revolving, take the die stock in the hands and hold it against the end of the pipe until it is started on. After that, the handle is rested on a horizontal bar thrust into a hole in the frame, and requires no further holding.





*Audible-type instrument for measuring the moisture content of dried fruit*

¶A new craze in southern California has taken the place of miniature golf. Large lots are given over to race tracks for children equipped with ¾-hp. automobiles which race madly about the track at about 4 miles per hour. Such installations usually take considerable lighting and Los Angeles Gas & Electric Corp. reports 67 kw. for each of these lots. Bicycle race tracks are also lighted.

▼

¶A new wholesaling firm named Moore Electric Co. at 550 Fifth St., San Francisco, has been formed by Henry Wolff, formerly of Kierulff & Ravenscroft. Don Gray, formerly a salesman for Westinghouse Supply Corp., is also a member of the firm.

▼

¶Bacon-Cooper Co., Denver, Colo., is a new partnership recently formed by Arthur E. Bacon and John J. Cooper. They will act as manufacturers' representatives for electrical materials in the Rocky Mountain area. The address is Merchandise Mart, 1863 Wazee St., Denver.

▼

¶W. H. Tierney Electric Co., with headquarters at 2713 First Ave. South, Seattle, has recently been organized to give electrical manufacturing, engineering and repair services. I. J. Trahan, president has been for the last 25 years Pacific Coast manager for S. A. Woods Co. W. H. Tierney, electrical engineer, is a member of the firm.

▼

¶M. A. Strand has been elected president of the Utah branch of the National Electrical Contractors' Assn. Other officers include J. C. Jacobs, vice-president; M. J. Kynaston, secretary; and R. P. Maybee, treasurer.

▼

¶Utah Power & Light Co. recently ended a two-year period marked by elimination of fatal accidents and a reduction of more than 50 per cent in lost-time accidents over the entire system of the country. Credit for this record is given to the reorganization two years ago of the company's safety department with J. H. Sundstrom as safety director and Dr. Adam S. Bennion as chairman of the central safety committee.

¶"The Electric Eye," a snappy and helpful house organ of the Vancouver Electrical Assn., has again been improved in size and quality. Edited by C. B. Jarvis, R. C. Graham, president of the contractors' association, and G. W. Firth, the publication is managed by J. C. Reston, secretary of the association. The October issue notes that the association has moved to larger quarters and employed Miss E. Ackroyd at its new office at 542 Howe St. The association holds two meetings a month, besides which lighting educational meetings were started Sept. 27. A credit bureau, a resale pricing service, and other similar activities are undertaken under President Graham. Other officers of the association are: A. Cowsill, vice-president, and T. Smithers, treasurer. The executive committee consists of C. H. E. Williams, T. C. Simmons, B. Hutcheson, H. Lucas, W. N. Mott, F. W. Rowley and R. Hall.

▼

¶Bainbridge Electric Co., Winslow, Wash., is a recently established electric store, which will engage in electrical contracting as well as handling a complete line of appliances and equipment. The store is owned by Roy H. Breed.

▼

¶Glenn Arbogast, president of Newbery Electric Corp., Los Angeles, was appointed by Mayor Shaw of Los Angeles to the Harbor Commission of that city.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¶ **Indirect Lighting** for a garage is unusual enough to excite comment, yet N. H. Graves, lighting salesman of P. G. and E., for a long time a believer in the idea, has shown that it can and should be done, at the Nob Hill Garage, on Washington St., San Francisco. Catering to a fashionable clientele, the owner knew that his women customers objected to parking their cars with glaring light in their eyes, but didn't know how to prevent it. Mr. Graves talked indirect lighting; sold the idea. Two units were installed in one day, and tested. They proved so convicing that the whole job went in, and a repainting job with it. Also a promise that the paint would be washed once a month. Rewiring was done so as to place two units per circuit, with 300-watt lamps initially installed, but capable of taking 500-watt lamps later. Marine Electric Co. made the installation.

▼

¶ **The Electrical Estimating Bureau,** formerly in the McDowell Bldg., Seattle, has moved to 2400 First, South.

▼

## Modernize Old Fountain

ORIGINALLY a gift to the city of San Diego, Calif., from its former mayor, the illuminated fountain in the plaza, on Broadway between Third and Fourth Ave., for many a day was one of the city's boasts. Installed in 1911, it first was lighted by ordinary incandescent lamps placed under glass domes and under pools around the base of the columns. Water seepage caused trouble with the wiring and a year or so ago the system was disconnected. Not long ago a motor-driven flasher and 20 G.E. Type A1-33 underwater floodlights were installed. Four floodlights with clear lenses were placed in the cupola roof, eight with alternate green and blue lenses in the pools below the columns and eight with alternate red and amber lenses under the sprays in the center, with their beams engaging the spray at five degrees. Each unit is equipped with a 250-watt lamp. The installation was made by Mr. Benson, the park electrician.

## Map Roller Speeds Dispatching

SUPPLEMENTING the large operating chart used in most load dispatchers' offices, Pacific Gas and Electric Co. has added a compact device which makes complete details of all circuits available on an instant's notice. By means of a reversible map-rolling mechanism, a system map 50 in. wide and between 30 and 60 ft. long passes behind a slanting glass plate mounted on the rear of the dispatcher's desk. Foot controls under the desk enable the dispatcher to run the map in either direction until the desired section appears behind the glass. Limit switches prevent over-runs in either direction.

As shown in the accompanying photograph, the machine rolls into position behind the desk in permanent channel rails. It is locked into position and furnished with removable covers for the operating mechanism. Rollers are of heavy brass tubing and are driven by a system of gears, worms and chains carefully designed to eliminate noise and insure that the map will roll evenly in both directions. While rugged, the mechanism is extremely compact, being less than 60 in. wide.

The map travels at a rate of 3 ft. per sec. and, as speed control and quietness are important, direct current is used for the drive. Because only 60-cycle, 110-volt, a.c. power was available in the location, a Phanatron rectifying panel mounted in an adjacent room is used to convert to the d.c. supply.

By the use of a map-rolling mechanism, complete operating diagrams, communication circuits, and relay charts of the system can be accessible yet occupy only a fraction of the space required for the conventional dispatching board or individual map compartments. Any portion of the 240 sq. ft. of circuit details incorporated on rolled map can be exposed for study within a few seconds. The mechanism, which was built for Pacific Gas and Electric Co. by Western Electro-Mechanical Co., of Oakland, Calif., is designed to handle 100 ft. of map, thus providing for system growth and additional detail when necessary.

▼

## Lemon Storage Air Conditioned

Air conditioning in lemon storage plants has developed rapidly during the past summer. By means of controlled air conditions lemons can be placed in storage and held from the market until such time as to bring a uniform price throughout the year. Several types of such installations have been put in by lemon and citrus association plants in California.

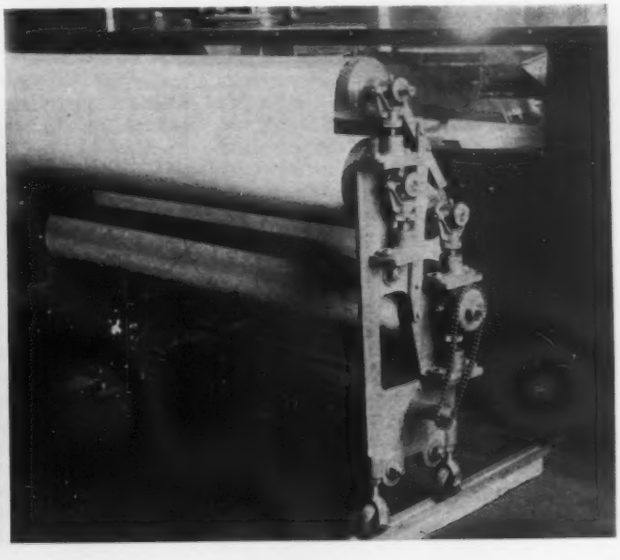
The Carrier Engineering Co. installed such a system for C. C. Teague packing plant at Santa Paula. Another plant at Upland was installed. The North Whittier Heights Citrus Assn. had a plant installed by H. A. Hamm. In the latter the system uses the principle of falling water to create a draft and does away with fans. This increases the horsepower demand on motors and eliminates some of the duct system required in the ordinary system. At San Dimas, Calif., a plant was installed on the Edison lines by the York Ice Machinery Co.

▼

¶ **Beer Brought Pretzels**—out on the counter again, and the Dainty Pretzel Co. of 939 Howard St., San Francisco, went into enlarged production with full electric equipment, installed by Buzzell Electric Works. The equipment replacing oil consisted of a 5 kw. baking oven, a 9 kw. drying oven, and 9 kw. in immersion heaters. Now the pretzels truly live up to their name.

*Motor-driven map-rolling mechanism, installed at the rear of the load-dispatcher's desk, presents continuous and detailed operating chart for inspection and study through the glass window*

*Plaza Fountain at San Diego newly relighted*



# Motor Forum

*—An Idea Exchange*

for the Industrial Man and his practical problems, either mechanical or of policy

# We Sink or Swim

## *as Motor Shops, on Customer Service*

*says*

**J. C. Morrello**
California Electric Co. Ltd., Oakland

*to W. O. Hurlbut*

NATIONAL revision of business policies is actually in the making. It is no compliment to the electrical industry that the government has had to take a hand in it. But there is no denying that the step seemed necessary. There is no industry, in my opinion, harboring so many stumbling factions badly in need of compulsory cooperation.

At last is seems that electrical dealers, especially those who operate the multitude of independently owned service shops, decentralized, throughout the land, have every reason to look forward in confident hope to immediate betterment of those competitive conditions which have been the subject of hopeless dispute for years. The outlook seems considerably brightened when one considers affairs of the past and remembers relations endured with wholesalers, manufacturers, and practically all of the large, affiliating interests comprising the source of the dealer's materials supply.

The dealer can have nothing to lose by policy revisions on the part of these interests. He can have nothing to part with but burdens. If it is true we enjoy only by comparison, a riddance of those long borne burdens would no doubt seem a dealer's Utopia. Possibly the hoped-for feeling might be likened to the delights indulged in by an unfortunate fellow that a salesman once told me about. The fellow was discovered in a quarry near Napa, pounding his head with a rock. Later, when the psychiatrist asked why he did that, he explained that it was because it felt so good when he stopped.

But there is no point in reiterating accusations of the past. Nor should there be any pretense that dealers have not contributed their full share of head-pounding practice detrimental to mutual welfare, whether in self-defense or otherwise. The point is that there has long been a definite drift toward establishment of large business units in electrical fields, as well as others, and the elimination of small enterprise. Large, centralized companies have steadily spread their effective sales nets throughout all communities in the nation. Their tactics have not been dictated so much by forward-looking policy, perhaps, as by ineviable and uncontrolled business trends, widespread trends.

Dealers' business problems in the states of Montana and Washington, where I contracted formerly, appear identical to those encountered in California. No doubt the situation is national. But what seems most significant, and remarkable, is the fact that the comparatively small service shop has survived at all; has shown no appreciable tendency toward being eliminated as a needful establishment in industrial communities.

*Mr. Morrello and his best customer*

How has the service shop survived? Surely not on profits earned in a field of open competition. I know of no dealer who has made money, as the saying goes, in the business. A rare few may have fared well, but in all probability their wealth came from fortunate or well chosen investments outside their immediate electrical interests.

The service shop has stood its ground on customer need, customer confidence, customer cooperation. Profits have been necessary, of course, but customer cooperation has permitted profits which destructive forms of competition otherwise would have destroyed. And in this cooperative relation with the customer, profits as a sales incentive, have been treated as secondary.

Customer need has been primary. This unusual condition has existed not for reason that dealers unselfishly chose such an idealistic course. Far from it. That policy evolved in a general way as a natural result of intimate personal association with the trade; a development of fellowship between dealer and customer peculiar to the service business. Service, intimate service is what the customer demands. And he insists upon doing business with the "Boss," not sales-engineers assigned from a distant agency, who, likable as these men usually are, seldom overcome the disadvantage of their subordinate position in the eyes of the local customer.

With this advantage, in addition to possible betterment in sales practices promised just ahead, an equality of competition beneficial to the community and yet not destructive to competitive dealers might actually be achieved in connection with some sales and at least most installation jobs. But the problem of selling new equipment, without loss, and repairing old equipment in competition with the ever-decreasing, cost of new replacements seems to remain an unaltered problem of the future.

Equipment sales, especially with regard to new equipment, may often introduce an insidious loss, which can only be absorbed by profits earned in the repair, or other departments. Any dealer who will explain in this forum how other than loss can result from continued sales of new electrical machinery under present conditions will have contributed information of untold value. Of course, if a dealer does not keep segregated accounts of the operations of each of his departments this actual loss may go undetected for a long time and he may kid himself that he is earning a profit on new equipment which really comes from his other operations.

Obviously, shops determined to continue existence are compelled to minimize those transactions that can be carried on only at a loss of money. Continued existence dictates furtherance of used equipment exchange along cooperative lines, and increase in repair and maintenance activities.

In this field dealers have a particularly mutual interest—aside from a mutual duty—in combining in a common effort to maintain a high standard of wages. Maintenance of fair wages for outside construction work will likely meet with little or no difficulty. But unlike construction work, equipment repair must not only contend with

the normal competition of neighbor shops but also must be performed at a cost less than new replacement. And the nature of electrical repair work requires employment of highly skilled craftsmen while modern manufacture of replacement parts of new machines does not.

This problem, therefore, is not an easy one and yet if electrical repairmen are not encouraged with a wage rate becoming their skill, development of talent in this specialized field will cease and needed supply of competent workmen for the near future cannot be expected.

Details having to do with the wage problem, however, involve specific phases of the situation which lie a bit aside from the subject this article is intended to discuss. And the bearing wage affairs reflect on the problem as a whole seems so important as to merit special consideration. For that reason, another article, confined to discussion of that subject only, will be offered soon.

▼ ▼

# Books . . .

## *You'll Need in Your Work*

DIRECT AND ALTERNATING CURRENT, by E. A. Loew, professor of electrical engineering, University of Washington, Seattle, Wash. Cloth bound. 6x9. 656 pages. Illustrated. First edition. MacGraw-Hill Book Co., Inc., New York. $4.50. For sale by the McGraw-Hill Retail Room, 883 Mission St., San Francisco.

This volume is intended primarily for a short survey course on the theory of the electric circuit and operating principles of electric machines. Early chapters cover the theory and laws of electric phenomena which are used as the basis for the discussion of direct and alternating current machinery are taken up in detail in later chapters. An effort has been made to give a complete but brief treatment of all types of rotating and static electrical equipment, including batteries, protective equipment and electron tubes and rectifiers. The book should provide a basis for an excellent course of study on direct and alternating theory and practice.

▼

SYMMETRICAL COMPONENTS, by Charles F. Wagner, research engineer, Westinghouse Electric & Mfg. Co., and R. D. Evans, manager, transmission engineering, Westinghouse Electric & Mfg. Co. Cloth bound. 6x9. 437 pages. Illustrated. First edition. McGraw-Hill Book Co., Inc., New York. $5. For sale by the McGraw-Hill Retail Room, 883 Mission St., San Francisco.

The theory and application of symmetrical components has been found to be the only practical method of attaining solutions for unbalanced electrical circuits, particularly with reference to the investigation of unsymmetrical transmission services occurring on transmission lines. The text of this book rigorously teaches the theory and application of symmetrical components to practical operating problems and, in addition, provides extensive treatment of several special problems in this field. The presentation of the subject is clear, concise and detailed and arranged to be a valuable practical help to the operating engineer as well as a text book for advanced students in electrical engineering. Because of its recent developments, practicing engineers frequently will have had the opportunity of studying the subject of symmetrical components in organized classes and this book should be a valuable substitute in obtaining a thorough working knowledge of this subject.

▼

CONDUCTION OF ELECTRICITY IN GASES. By Joseph Slepian, Ph.D., Westinghouse Consulting Research Engineer. Published by Educational Department, Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa. 188 pages, illustrated by sketches. $4.00.

Essentially an authoritative textbook for researchers, physicists, professors and students on the passage of electricity through gases, this book is probably the most concise and advanced treatise available on the subject which stresses the bearing of the theory upon applications in electrical engineering. Theory and illustrative examples are up to the minute, the text being notes taken by students in a series of lectures given by Dr. Slepian for a selected group of research workers and engineers. Sketches and mathematics are freely used.

The first thirty pages of the book stress the fundamentals of electrical conduction in gases, while the remaining pages apply these basic considerations to the study of such discharges as glows, arcs, sparks and corona, as they are presented to the electrical engineer in the normal and abnormal operations of his apparatus. The fundamental phenonomena of low current discharges, such as cathode rays, photoelectric effect, thermionics, etc., are treated brifley but sufficiently to form the basis in developing the theory of heavy current discharges.

Starting with the atomic theory of matter, those chapters of the kinetic theory of gases which are necessary for the proper understanding of the theory of electric conduction in gases are developed in an elementary manner from ordinary mechanical principles.

▼

PUBLIC UTILITY RATE STRUCTURES. By L. R. Nash, Public Utility Consultant, Stone & Webster, Inc. 379 pages. 6x9. $4. McGraw-Hill Book Co., Inc.

Unprecedented interest in and development of public utility regulation, particularly as applied to rates during recent years makes such a fundamental and thorough text as this essential. The book presents a needed comprehensive treatment of current rate practices and applications, including promotional rates, cost analysis and the economic factors of rate-making. Every technical phase of the subject receives attention, as do the distinctive features of rates applicable to various classes of utilities. Rate making, the author contends and proves, is not an exact science but a skillful balancing of conflicting objectives. Added value is given the book though the bibliographies and references at the end of each chapter. On the whole it is a valuable reference work for rate designers, executives and students.

▼

WHAT ELECTRICITY COSTS. Published by the New Republic, N. Y. 5 by 7½ in. Paper bound. Editor, Morris Llewellyn Cooke. 421 West 21st St., New York City.

This is a symposium of papers presented before the Institute of Public Engineering under the auspices of the power authority of the State of New York in association with the public service commissions of the District of Columbia, New York and Pennsylvania. The material was compiled by consulting engineers, public utility commissioners and other authorities for the determinations and allocations of distribution costs to domestic and rural consumers. Utility executives and engineers will find the data and conclusions of interest and value.

▼

TELEPHONE THEORY AND PRACTICE, VOL. II, Manual Switching and Substation Equipment, by Kempster B. Miller. Fabricoid bound. 6x9. 426 pages. Illustrated. First edition. McGraw-Hill Book Co., Inc., New York. $5. For sale by the McGraw-Hill Retail Room, 883 Mission St., San Francisco.

Dealing almost exclusively with subscribers' equipment and central office switchboards employed in manually operated telephone exchanges, this book takes up first, the talking and signaling equipment and circuits at the subscribers' substation and second, the switchboard equipment and circuits at the central office in considerable detail. Early developments in telephony are used as a basis for describing the design and operation of the types of substation and manual central office equipment now in use throughout the United States. Major developments are taken up and discussed in logical sequence and, although the subjects are closely related, each fundamental change in technique and design of telephone apparatus is explained by a comprehensive treatment of the progress in this field to date. Elementary and advance considerations of the development of the subscribers' equipment, the transmitter, the receiver and the induction coil and various manual methods of connecting and switching the central office are presented clearly with ample illustrations and sketches so that the material is readily assimilable for anyone possessing a fair knowledge of telephony or electricity.

▼

¶ **More Information** for the writing. Electrical West will put you in touch with those who can give you complete details on any subject reported.

## Denver Notes Pickup in Electrical News

Denver, Oct. 18.

Colorado electrical dealers, jobbers, wholesalers, and manufacturers' representatives were doing considerable "watchful waiting" in October. All eyes were turned toward Washington whence news was momentarily expected concerning the outcome of code conferences. But, while waiting for the crystallized code, applying to local situations, to materialize, none of the Denver electrical men, at least, let any grass grow underfoot. They've been going after business in a big way, with due regard for the Blue Eagle and the blanket code now in effect.

More optimism prevails than has been apparent in a long time. Everybody is busy at something. W. A. J. Guscott, president of the Denver Electrical Contractors' Association and one of the veteran contractors of Colorado, is wiring the big, new country home of W. B. Struby. This residence is a $125,000 affair—itself an omen of better times——and calls for a wiring job that runs into important money. "Gus" is the lad who gumshoed around, a while back, helping John Malpiede, Denver's Chief City Electrician, rid the city of "gyp" electricians. Having finished his detective work by getting the goods on journeymen who operated as contractors, and on alleged electrical experts who contracted with no license at all, he is 'tending his own private affairs again with considerable success.

Another very bright spot in the Denver electrical picture is the Scott Brothers Electrical Company. This firm, occupying less than twenty feet street frontage, rates among the nation's livest electrical shops when it comes to selling radios.

The brothers Scott, Eddie and Gleason, conduct a store handling electrical equipment of all sorts. Also they are contractors; but they specialize on radios. For more than a year they have averaged sales of one hundred radios a month. In the August issue of "Philcogram"—issued by Robert F. Clark, regional distributor—Scott Brothers were featured all over the page. They had bought, for immediate delivery to customers, 107 Philco Home Sets during June and July; and these orders represented only one of their several radio lines. During August and September, Scott Brothers sold 220 sets.

In addition to their radio sales, the sale of merchandise from shelves, and other activities, Scott Brothers have taken on a contract to install wiring and fixtures in the rejuvenated Rainbow ballroom. Modernistic lighting, silver and copper reflectors, and a lot of other improvements to delight the heart of a contractor-dealer, are part of the scheme. The job is another symbol of improved economic conditions, since Rainbow ballroom has been unoccupied for a long time.

E. E. (Ernie) Brazier, division manager of the General Electric Supply Corporation, is a-flutter over the impending move to bigger and better quarters about November 15. He, his goods and the G.E. personnel will leave the present location on Lawrence street in favor of an entire building at Eighteenth and Blake Streets, where there will be room to expand. The new quarters include 30,000 sq.ft. of floor space—three stories and basement —which have been in process of remodeling lately. There will be display rooms for all major appliances, lighting equipment and other electrical supplies requiring demonstration. "Ernie" isn't quite sure how to identify the department from which he will supply city customers. For the present he plans to call it the "broken package department."

Modern lighting, ventilating and air conditioning systems will be a part of the improvements at the new address.

Gossip picked up in conversation with Ernie Brazier: B. H. Bygel, formerly manager of the United Electric Company at Salt Lake City, now represents General Electric Supply at Albuquerque, New Mexico. He takes over territory formerly covered by F. D. Needham who has moved into Denver from Pueblo—C. S. Clay, until recently in Denver as G.E. representative, has gone to Cheyenne, Wyo., where his work will take him into Nebraska and south Dakota, as well as Wyoming. Thus it becomes apparent that G.E. boys are shifting around a bit in the interests of better territorial coverage.

Brazier notes a gratifying upturn in sales of construction materials. He thinks the Blue Eagle may have hatched some eggs; and he considers that he has chosen an auspicious time to vacate cramped premises.

Graybar Electric Company, Inc., of which the ubiquitous A. C. (Al) Cornell is manager, has installed a 50-watt transmitter at station KGZX in Albuquerque, New Mexico. This job was for the use of police and benefit of Albuquerque citizens. It includes, besides microphone and other sending equipment, receiving sets in eight police cars—six for city cops, and two for Bernalillo county radio-equipped autos. The installation was authorized by Albuquerque's mayor, Clyde Tingley who, according to Al Cornell, has held down the municipal executive chair for seventeen years without pay. Mayor Tingley understands that modern crime waves cannot be handled without up-to-date equipment. He discovered this fact about the time Cornell made a business trip to New Mexico, armed with sales arguments and evidence to back them up.

H. E. Woodring, Graybar salesman in Denver, is recovering—his friends hope and believe—after a very grave operation. This is the third time Woodring has been under the knife within a year, and it was a very close call indeed.—Ed Hoover

¶ **Mining** has made quite a recovery on the lines of Southern Sierras Power Co., according to R. R. Dinsmore, commercial engineer and mining specialist for the company. California-Rand properties at Randsburg, Calif., have been overhauled. The mill has received a revamping and the mine is being dewatered on the expectation of metal market price rises. The tungsten mine at Randsburg has reopened because of the demand for Tungsten steel and the shortage of this metal. Tolia Mining Co. operates this property. Pacific Coast Borax Co. has been operating at full blast at its Cramer works. American Potash & Chemical Co. at Searl's Lake was said to be expecting to add $1½ million in new equipment next year, doubling the plant capacity as well as adding a soda ash plant. Products manufactured here are used extensively in the manufacture of glass, which the impending repeal of prohibition has stimulated.

▼

¶ **James A. Thompson,** executive vice-president, Pacific Electric Mfg. Corp., of San Francisco, left in August for a three months' trip to Europe.

▼

¶ **Friends of Lee Baltzelle** will be pleased to learn that he has recovered from serious burns and shock which he received accidentally by coming in contact with a 13,000-volt feeder circuit from the Cushman power house at Tacoma. Mr. Baltzelle was making inspection of the new steam plant of the city of Tacoma, last June, for the insurance company which he represents and had been assured that the apparatus which he touched was "dead."

▼

¶ **Hobe Barnes,** well known to electrical contracting circles throughout southern California and recently assistant to Larry Davis, general manager of the N.E.C.A., has returned to the Pacific Coast and is now affiliated with the Biddle Trade Bureau in Los Angeles.

▼

¶ **Walter J. Walsh,** at one time a member of the Great Western Power Co. organization and more recently engaged in the practice of law, has been appointed manager of the San Francisco office of the Biddle Trade Bureau, Inc., specialists in trade association management. Offices are at 822 Monadnock Bldg.

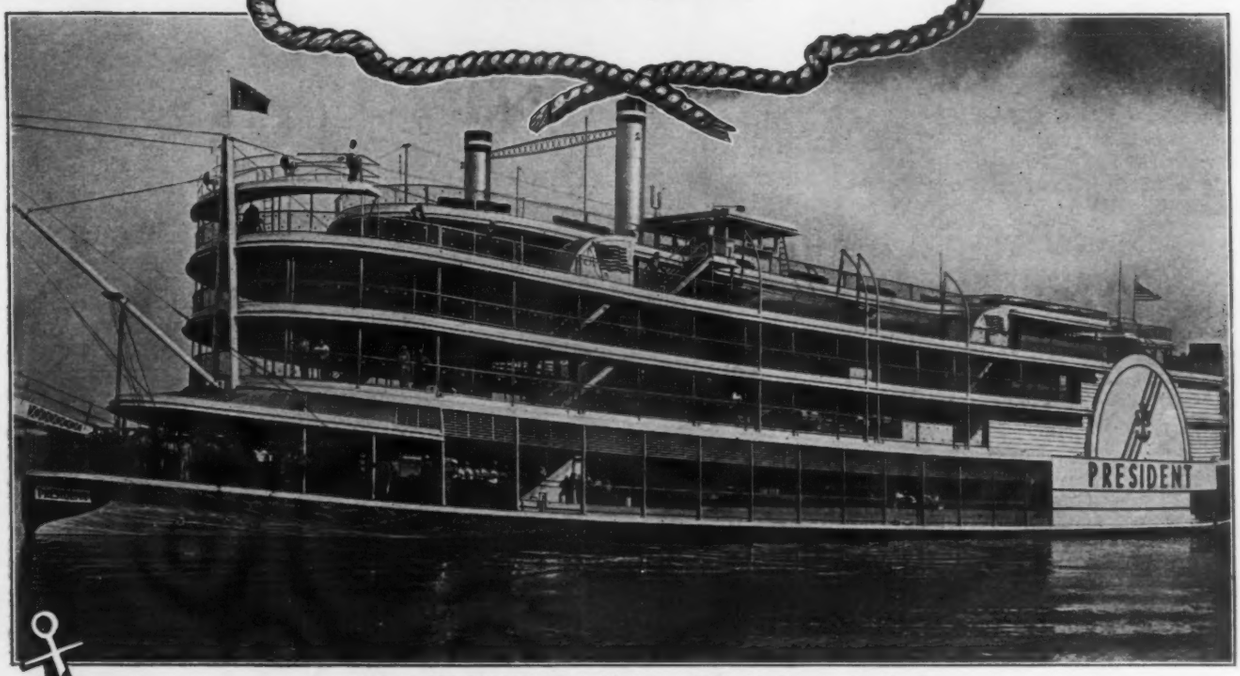
▼

¶ **Gilroy Licenses**—The out-of-towner must even things up for the city of Gilroy, Calif., as far as city income is concerned, according to a new ordinance setting a $100 license fee for general contractors, a $50 fee for subcontractors not residing in the city.

▼

¶ **Nashlund Electric Supply Co.** is a newly organized wholesale electrical firm located at 5728 West Adams Blvd., Los Angeles, carrying a line of wiring supplies and appliances.

# Steeltubes AFLOAT




*40,000 feet of* **STEELTUBES** *installed in the beautiful Stekfus Steamer "President" by the National Electric Service Company, St. Louis, Mo.*

Nowhere is there any other boat quite like the "President" with its luxurious appointments, its provisions for diversion and comfort, its gigantic open decks, and beneath its jewel-like splendor a sturdy all-steel construction.

More than 40,000 feet of Steeltubes Electrical Metallic Tubing was installed aboard the "President" to carry the wiring that serves the ten thousand lamps that provide illumination and beauty. Steeeltubes was used because it provided adequate electrical and mechanical protection and showed a worthwhile saving in weight and shorter installation time.

Contractors can make certain that they receive this modern threadless rigid conduit only by specifying it by name—Steeltubes, and by so doing reap the full benefits incident to the use of this resistance electric welded conduit. And so this word of caution —make certain that the name Steeltubes appears on your requisitions for materials.

Write today for complete descriptive literature and the name of the nearest electrical supply house carrying Steeltubes Electrical Metallic Tubing in stock.

**STEEL AND TUBES, INC.**

WORLD'S LARGEST PRODUCER OF ELECTRICALLY WELDED TUBING

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A UNIT OF REPUBLIC STEEL CORPORATION

# Practical Men » » »

## Turner Is New W. W. P. Chief Engineer

Arthur J. Turner, construction engineer for the Washington Water Power Co., has been appointed chief engineer, succeeding Victor H. Greisser, who has resigned because of ill health. Mr. Greisser has left Spokane to spend the winter in California.

Mr. Turner has had long experience in engineering work in Washington. He was identified with the Skagit development of the Seattle City Light Department and was later chief engineer for the Columbia Basin Irrigation League. He became affiliated with the Washington Water Power Co. in 1926 as resident engineer at the Chelan development.

▼

¶J. D. Greensward, armour-clad switchgear specialist of the Allis-Chalmers Mfg. Co., Milwaukee, has been in southern California in the interests of that line of apparatus.

▼

## Brown Heads Commission Staff

Claude C. Brown, gas and electric engineer for the California Railroad Commission, has been promoted to chief engineer of that body to succeed A. G. Mott, a national authority on regulatory proceedings, who has held the position many years.

Mr. Mott leaves the railroad commission to assume the larger responsibility of valuation expert for the State Board of Equalization. Under the new California state taxation amendment public utility properties will be returned to their several counties for taxation under a local tax rate. The State Board of Equalization has the power to fix uniform valuation for the counties and it is in this capacity that Mr. Mott's experience and training will be utilized.

J. E. McCaffery, assistant engineer for the state railroad commission, with headquarters in Los Angeles, will succeed Mr. Brown as gas and electric engineer for the commission.

▼

¶Specializing in engineering management and consultation, the Three Engineers Co., 502 White Bldg., Seattle, Wash., has been formed by R. A. Mummey and R. Classen, former members of the General Electric service shop organization. The firm also does general electrical installation and repair work as well as manufacturing switchboards and control panels for industrial and central station installations. This company also represents the Louis Allis Co., of Milwaukee, Wis., and the American Transformer Co., of Newark, N.J.

## Greisser Resigns W.W.P. Position

Victor H. Greisser, chief engineer of The Washington Water Power Co., has resigned his position but will continue in the employ of the company as consulting engineer. Mr. Greisser's action was prompted by ill health. He expects to spend the winter in California before resuming his new duties.

During his long career with The Washington Water Power Co., dating back to 1906, Mr. Greisser has been identified with many important developments. He designed the Upper Falls and Chelan power plants and is considered an authority on hydro-electric engineering.

▼

¶Charles W. Gillian, consultant on power problems and cost surveys, was a visitor to the Pacific Coast recently from his headquarters at San Antonio, Tex., to establish offices in Los Angeles, San Francisco and other Pacific Coast cities. Mr. Gillian already operates fourteen such offices over the United States.

▼

¶Green & Green, electrical contractors of Pasadena, Calif., have moved from 2479 E. Colorado to 32 North San Gabriel Blvd. in that city.

▼

¶L. B. Stacey, chairman, and D. M. Johnstone, secretary, of the Vancouver Section, A.I.E.E., have just announced a schedule of meetings for 1933 and '34 by means of a small pamphlet. Meetings are scheduled up to and including June 4, the annual dinner. Among the scheduled meetings will be that of November 6, at which the subject will be, "Some Contributions of British Scientists," by Dr. Buchanan, Department of Mathematics, University of British Columbia, and a lecture by Dr. R. H. Clark, Department of Chemistry, Dec. 4 on "Electro-Chemistry and Chemistry in Engineering."

▼

¶T. C. Clarke, sales manager at Vancouver for the Northern Electric Company Ltd., has been appointed as district manager for the company in British Columbia and Alberta. He will assume his new office on January 1, 1934, when J. F. Little, manager for British Columbia, retires on pension. Mr. Little is now completing 31 years of service with the Northern Electric Co., and has been with the B.C. headquarters of the firm for the past 21 years. Announcement of the promotion of Mr. Clarke was made during the recent visit to the branch of M. K. Pike, vice-president in charge of sales, during the course of a tour of the Dominion.

▼

¶Fred D. Weber, of the Oregon Insurance Rating Bureau, Portland, has been re-appointed to the Oregon State Board of Engineering Examiners by Governor Meier. Mr. Weber is chairman of the board.

## Wilcox Heads L. A. Engineers' Club

Raymond Wilcox of Long Beach, Calif., mechanical engineer of the fuel-electric generation department of the Southern California Edison Co., has been elected president of the Engineers' Club of Los Angeles, for the 1933-34 year. He succeeds Charles S. Howe, president of the Los Angeles Testing Laboratories, Inc. Other officers elected to serve with Mr. Wilcox are Frank F. Boyd, consulting marine engineer, first vice-president; H. W Hitchcock, chief engineer, Southern California Telephone Co., second vice-president; Edwin F. Stauffacher, electrical engineer, Southern California Edison Co., secretary, and W. R. Clifford, chief engineer, Layne and Bowler Pump Corp., treasurer.

New directors of the club are Mr. Howe, W. Roy Shettle, engineer in charge of construction, Los Angeles Gas and Electric Corp.; Lloyd Aldrich, city engineer, City of Los Angeles, and Ezra B. Rider, experimental engineer, Metropolitan Water District of Southern California.

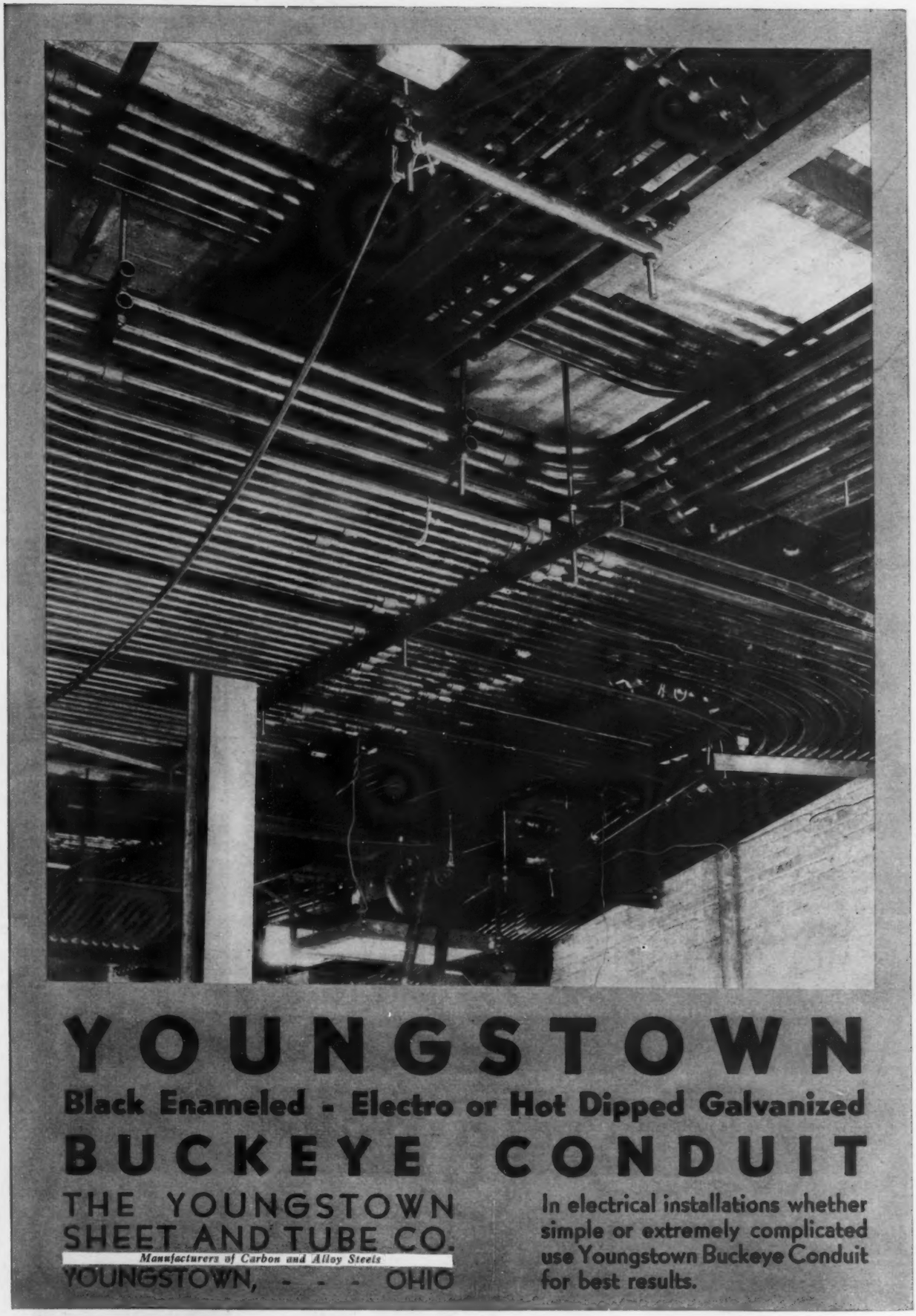
Organization of a public affairs committee of the club, to guide the club in a more active participation in the engineering phases of public problems and civic matters, was authorized at the annual meeting on Oct. 19.

▼

¶W. P. Alexander has established offices at 402 Market St., San Francisco, as a manufacturers' agent, representing Gould hydroil oil purifier equipment. Prior to coming to the Pacific Coast, Mr. Alexander was an engineer with the Hydroil Division of Goulds Pumps, Inc., of Seneca Falls, N. Y.

▼

¶Rome C. Saunders, at one time manager of the Southwest District of the Puget Sound Power & Light Co. with offices in Tacoma and more recently a member of the Henry L. Doherty & Co. organization in San Francisco, has joined Schwabacher & Co., dealers in investment securities with headquarters in the Palace Hotel Bldg.


YOUNGSTOWN
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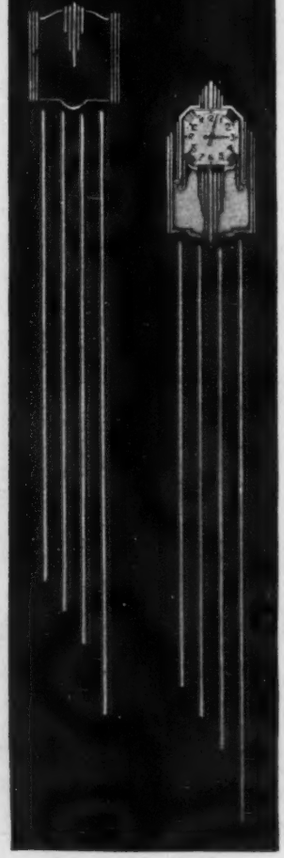
BUCKEYE CONDUIT
THE YOUNGSTOWN SHEET AND TUBE CO.
Manufacturers of Carbon and Alloy Steels
YOUNGSTOWN, - - - OHIO
In electrical installations whether simple or extremely complicated use Youngstown Buckeye Conduit for best results.



# November is DIAMOND E MONTH

Your supply house is featuring Diamond E electrical control equipment during November. They want you to know about Diamond E's new products as well as many advanced improvements in already well established Diamond E lines. You will want to see the new Diamond E Chime,—which we believe is the finest chime on the market,—with sales possibilities galore. Look at the new Diamond E panelette, a typically progressive improvement in modern residence fuse cabinets,—made by Diamond engineers. Drop in at your supply house, talk things over, see for yourself that the complete Diamond E line is abreast of the times, that each and every one serves the practical purpose for which it is designed. Do it today.

*All Diamond E representatives have the new abridged catalog ready for distribution, or, if you prefer, you may write direct to the Diamond Electrical Mfg. Co.*

## DIAMOND ELECTRICAL

MANUFACTURING COMPANY LTD.
1320 E. 16th St. Los Angeles, Calif.

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*Sales Offices:*

SEATTLE • PORTLAND • SAN FRANCISCO • DENVER
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*Factories:*

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DETROIT • MILWAUKEE • PERU, IND. • WALKERVILLE, CANADA

¶**The Melody Co.,** 4322 Eagle Rock Blvd., Los Angeles, has been organized to manufacture and sell Melody chimes. The company was organized by Roy A. Parkinson and Archer G. Jones, both of whom were formerly with the Electric Signal Co., manufacturers of Velvatone chimes.

▼

¶**Drew A Bernard,** Utilities Supply Co., Los Angeles, attended the American Legion national convention at Chicago, and while East visited a number of principals represented by his company.

▼

¶**S. B. Gregory** and Carl Sachs, San Francisco and Los Angeles representatives of Arrow Electric Division and Arrow-Hart & Hegeman Electric Co., respectively, made a joint tour of southern California, holding meetings with wholesalers and contractors and exhibiting a motion picture entitled "Leaders." Meetings were held in San Diego, Los Angeles, Long Beach, Pasadena and Hollywood. Mr. Gregory plans to hold similar meetings in nothern California.

▼

¶**Harry Daley,** well known in electrical circles of California, was recently affiliated with the Dalmo Mfg. Co., of 511 Harrison St., San Francisco. The company manufactures desk lamps and electrical specialties as well as specialties in other fields.

▼

¶**Ralph L. Jenner,** electrical engineer, Lapp Insulator Co., Le Roy, N. Y., recently spent a month in California working with the Los Angeles and San Francisco offices of the company's representative on the Pacific Coast, Maydwell & Hartzell, Inc.

▼

¶**H. D. Betts,** vice-president, Thomas & Betts Co., Elizabeth, N.J., recently spent about four weeks on the Pacific Coast covering the territory from Vancouver, B. C., to Los Angeles, Calif., working with his representatives in various trade centers.

▼

¶**Mullenbach Electrical Mfg. Co.,** Los Angeles, manufacturer of switches and switchboards, has announced the appointment of Allied Industries, Inc., as its representative in San Francisco, Portland and Seattle.

▼

¶**W. W. Glosser,** Pacific Coast manager, Hubbard & Co., Oakland, has announced the transfer of S. P. Larsen, Northwest representative of this company, from Seattle to Los Angeles, in charge of southern California and Arizona sales for the company. Norman D. Arntzen is to have charge of Northwest sales, with headquarters in Oakland.

▼

¶**Balboa Electric Co.** is a new wholesaling firm in San Diego established recently by Ralph J. Zinke, formerly with the Coast Electric Supply Co. of that same city. The address is 232 Seventh Street.

# New Devices » » »

## *to Use on that Next Job*

### *Hydraulic Coupling*

American Blower Corp., Detroit, Mich., announces a newly developed hydraulic coupling which makes possible variable speed control with a constant speed motor for use with centrifugal pumps. Engineers of the company state that with this coupling a simple induction motor can be used to replace a slip ring motor in pump operation. The coupling permits an infinite number of speeds.—Electrical West, November, 1933.

▼

### *A. C. Generator Bulletin*

Allis-Chalmers Mfg. Co., Milwaukee, has issued bulletin No. 1158 illustrating its line of bracket bearing alternating current generators, built in ratings from 30 to 1,000 kva. These generators are suitable for coupled or belted service to high speed steam or internal combustion engines and for gearing to steam turbines.—Electrical West, November, 1933.

▼

### *Fuse Mounting*

Pacific Electric Mfg. Corp., San Francisco, announces a new line of high-tension fuse mountings. Three styles are available as follows: Type ES, a plain fuse support for types EX and EX-1 expulsion fuses; type ES-1, a fuse switch for types EX and EX-1 expulsion fuses and type ES-2, a plain fuse support for the type EH inert powder filled fuse. Fuse supports can easily be converted into fuse switches and vice versa by changing the hinge castings, all other parts being identical.—Electrical West, Nov., 1933.

▼

### *Weatherproof Outlet*

General Electric Merchandise Department, Bridgeport, announces a new weatherproof outlet that will facilitate the use of outdoor lighting fixtures and appliances. Made of brass and cadmium coated, it resists rust and corrosion. The flush plate has a solid rubber pad mounted on the back, insuring a snug fit when the device is screwed in place. A cap slips over the cord plug and screws into the device, assuring a weatherproof connection. Another rubber-insulated cap, chained to the flush plate of the outlet, screws tightly over the outlet when not in use.—Electrical West, Nov., 1933.

▼

### *Circuit Breaker*

Delta-Star Electric Co., Chicago, has developed a new rectangular tank type CR-30AT 15-kv., 600-amp., three-pole circuit breaker with an interrupting capacity of 50,000 kva. at rated voltage. Lift rods are guided by rollers and cross tied to insure positive contact and alignment. The main contacts are silver surfaced and self-contained shock absorbers absorb impact forces. A multipart oil retractor separates the oil from the gases during arc extinction, allowing the latter to be carried away through a header.—Electrical West, Nov., 1933.

### *Portable Tester*

Westinghouse Electric & Mfg. Co., East Pittsburgh, has developed a new portable a.c. testing set, known as the "Industrial Analyzer," which is suitable for testing household electrical appliances and industrial apparatus and motors up to 100 hp. 440 volts. The analyzer is in reality a miniature portable three-phase switchboard panel in a carrying case complete with all necessary switching equipment, transformers, and resistors. The unit contains a triple-scale ammeter, a triple-range voltmeter, a polyphase wattmeter with three scales and a polyphase power factor meter. Two special lightweight current transformers provide multiple current ranges. The instrument is completely self-contained and is mounted in a durable carrying case about the size of an ordinary suitcase, total weight being only 28 lb.—Electrical West, Nov., 1933.

▼

### *Tree Wire Guard*

Spaulding Fibre Co., Tonawanda, N.Y., has recently announced a new tree wire guard which is constructed of Bakelite laminated and combines high dielectric strength with resistance to abrasion. It has a flexible curtain to enclose the wire with several turns for electrical protection. The remainder of the guard consists of a hard, tough Bakelite laminated shell, weatherproof and resistant to abrasion. The shell completely encloses the fabric-wrapped wire and possesses a constant gripping action that maintains tightness of the convolutions and prevents logitudinal displacement.—Electrical West, Nov., 1933.

▼

### *Underground Conduit*

Goodyear Tire & Rubber Co., Akron, Ohio, has developed a new type of conduit designed to meet the most rigid requirements of underground electrical service. The new product, which is to be marketed exclusively by the Graybar Electric Co., Inc., is claimed to have a high resistance to water absorption and to have definite fire resistance qualities. Due to high impact and crushing strengths, breakage is negligible, even at extremely low temperatures. In tests at extremely high temperatures the conduit does not exude oils or impregnating compounds. The inside surface is smooth and glossy with a resultant low coefficient of friction. The conduit is available in units from 5 to 8 ft. in length with inside diameters ranging from 1 to 6 in.—Electrical West, Nov., 1933.

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# What's New?

## Work Starts on Bonneville Project

Appropriation of $20,000,000,000 for the Bonneville Dam from PWA funds to the War Department early in October set the wheels in motion for the first Federal power development on the Columbia River. The site chosen is at Bonneville, at the head of tidewater, approximately forty miles east of Portland, Ore. Here a comparatively narrow gorge and Bradford Isand dividing the river into two channels provide a site established by the army engineers as the most feasible for power, navigation and flood control development on the lower river. No irrigation is planned from this development.

Power development plans call for the initial installation of 90,000 kw. capacity in two units of 45,000 kw. each. Foundations will be provided in the power house for four additional units of equal capacity with space left for a total of ten or twelve, giving a possible ultimate maximum of 540,000 kw. Barge navigation facilities are to be provided by locks, and the site permits later construction of locks for ocean going vessels if it is ever decided to put them in.

Actual work at the site was commenced within two weeks after the appropriation through awarding of a contract for diamond drilling and other exploration of the site to Fred P. Cannon, Compton, Calif. In charge of the construction is Major Charles F. Williams, Corps of Engineers, U.S.A., under Lt. Col. Thomas M. Robbins, division engineer of the Pacific Division, San Francisco. First Lt. Joseph S. Gorlinski is in immediate charge of administrative affairs. Chief civilian engineer is Claude I Grimm, whose offices have been established in the Pittock Block, Portland. He is assisted by A. E. McKennett, H. A. Rands, H. G. Gerdes and Ray Mackenzie.

Elevation of mean low water at the tail race site is 10 ft. The dam will establish the water level above at El. 72, creating an over-all maximum head at the power plant of 62 ft., and 60,000 acre-feet of effective pondage for power. The slack water pool created will be about a mile wide and will extend for a distance of approximately 50 miles upstream to the lower end of the Dalles-Celilo canal, a short distance above The Dalles, Ore. It will drown out the present rapids just above the dam site, now partly skirted by Cascade Locks, a government project of the late 80's and early 90's, and a stretch of narrow river and fast water at The Dalles, from which that city derives its name. This change in water level will necessitate relocation of roughly seven or eight miles of S.P.& S. railway on the north, or Washington bank, approximately five miles of O.W.R.& N. railway on the Oregon bank and approximately five miles of the famed Columbia River highway in scattered locations. River flow ranges from 50,000 sec.-ft. to a recorded maximum of 1,170,000 sec.-ft., the average discharge being 200,000 sec.-ft. Flood season at this point lasts about two months from May into July.

The main dam will consist of four separate structures, fitting into the configuration of the river bed at this point, the chief feature of which is Bradford Island about a mile long extending laterally with the river and dividing it into two channels. The dam proper will consist of an Ogee spillway section, 700 ft. long across the main channel from the Washington side to Boat Rock near the head end of Bradford Island, and 600 ft. across Boat Rock.

The spillway section will carry 22 lift gates, each 50 ft. long, with a total discharge capacity of 1,400,000 sec.-ft. From here an Ambursen-type, non-overflow structure, 1,200 ft. long, will parallel the river flow to a high point on Bradford Island. West of this high point will be an earth fill, covered by a concrete slab for protection against erosion, extending about 2,650 ft. laterally along the island to a point near its lower end. From here to the Oregon shore and across the other channel will be set the power house structure, with room for ten to twelve 60,000 hp. propellor type water wheels.

At the extreme west end of the power house and along the Oregon bank will be built tandem barge locks 56 ft. wide, 400 ft. long, and 12 ft. deep, providing a maximum of 67 ft. lift. Intake to the power house will be via the south or Oregon channel, for easy access to which considerable excavation will be necessary opposite the lower end of Bradford Island. It is expected that foundations for the spillway section of the main dam may go to elevation -110.

The total cost of the project is estimated at $31,000,000. This is to come from an out and out Federal grant for rivers and harbors improvement and as such will not need to be liquidated from power earnings. It is looked upon by informed citizens as presenting the opportunity for securing large power-using industries in the chemical and metallurgical fields heretofore not found in this section of the country. Its location on tidewater and consequent availability to ocean-going transportation is assumed to be a factor enhancing the economic possibilities of the development.

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**Alfred Lushing** has been confirmed as a member of the Municipal Water and Power Commission of Los Angeles to succeed Dr. John A. Eby, who resigned to take the position of director of public relations for the department.

## Utility Protests High Dam at Grand Coulee

Objections raised by the Washington Water Power Co. to construction of the Grand Coulee power and irrigation high dam in central Washington, as outlined in a letter from Frank T. Post, president of the company, to the Federal Power Commission, have been made public by the Columbia Basin Commission.

Mr. Post contended that the project is not a combined power and irrigation development but a power project only and as such should have no preferred status with the commission over a proposed power dam the company planned to build at Kettle Falls. The Kettle Falls site, he declared, would be inundated by the backwater of the high dam at Grand Coulee. Mr. Post asked that the power company either be reimbursed for $513,000 spent at Kettle Falls, plus $245,000 interest, or that the permit for the Grand Coulee dam be confined to a prospective development that will not submerge or interfere with the Kettle Falls project.

He suggested that the Kettle Falls project might be more feasible and asked that the power company application for a license at Kettle Falls remain in effect. Mr. Post charged also that the power company's development at Little Falls on the Spokane River will be injured by the ultimate development at Grand Coulee and that another power site on the Spokane River will be destroyed.

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## To Vote Dec. 19 on California Water Plan

Voters of California will decide on the fate of the proposed $170,000,000 water conservation and power development program in the Sacramento and San Joaquin Valleys at a special election on Dec. 19. The election is the result of a referendum against an act passed by the last State Legislature. The development includes construction of a 320,000-kw. hydro-electric plant at Kennett on the Sacramento River and the building of a $10,000,000 high-tension transmission line from the power house to the San Francisco Bay region. Should the project be approved application will be made to the PWA for funds to finance the development.

▼

**Ordinances** authorizing the city attorney to proceed with a thorough survey of public utility rates and appropriating $22,000 to finance the work have been passed by the Los Angeles City Council. Utilities to come under the survey are street car, telephone, power and gas companies. The council's action permits the city attorney to employ a special assistant at $10,000 per year to head the survey staff and two utility engineering experts at $750 per month. Carl I. Wheat, for many years counsel for the California Railroad Commission, has been proposed to head the staff.

## San Francisco to Vote On Municipal System

Included in the $35,000,000 of bond issues to come before voters of San Francisco on Nov. 7 is a proposal for an issue of $6,308,000 for the erection of a power house at Red Mountain Bar on the Tuolumne River, a transmission line from Newark to San Francisco, a standby plant and a distribution system. As a contribution toward this project an allotment of $1,400,000 has been received from the Federal Emergency Administration of Public Works which represents 30 per cent of the cost of labor and materials.

The remainder of the bond issues cover the raising of O'Shaughnessy Dam by 85½ ft., construction of a central warehouse, the building of a livestock exposition auditorium, several street projects, erection of a new Hall of Justice, the extension of the Marina yacht harbor, extension of the water supply system, extension of the street railway system and the construction of high-pressure mains for emergency fire protection.

Vigorous protest to the power development program was filed with the Federal Emergency Administration of Public Works by the Pacific Gas and Electric Co. in the form of a brief outlining objections to the program. The grounds of objections stated by the company were briefly:

1. San Francisco, like all California, is now abundantly supplied with electric power at low rates established by the Railroad Commission of California. The project for which aid is sought is designed to bring a duplication and wasteful overlap of electric power service into San Francisco, resulting in destructive competition and economic loss.
2. The project for which aid is sought is political in character, highly controversial and framed with a reckless disregard of the city's true financial interest.
3. Considerations of national and state economy of the existing power surplus in California and the impending influx of power from Boulder Dam forbid the giving of aid under the act to any new projects for the development or distribution of electric energy anywhere in California.
4. For the reasons stated the city's project will retard instead of advancing national recovery, because it will prevent the fullest possible utilization of the present productive capacity of the power industry in San Francisco and, whether considered by itself or in relation to the comprehensive program of public works contemplated by the National Industrial Recovery Act, the project is not economically or socially necessary, convenient or desirable.

▼

¶ **Final Outcome** of the suit filed by by the Puget Sound Power & Light Co., the Pacific Telephone & Telegraph Co., and the Seattle Gas Co. against the city of Seattle over the constitutionality of a gross earnings occupational tax has been delayed at least until next spring as a result of the decision of the United States Supreme Court to hear separate cases for each of the three utility companies. An ordinance levying a 4 per cent tax on the gross earnings of the telephone company and 3 per cent on the power and gas companies became effective July 1, 1932 and was later upheld by the Washington State Supreme Court. An appeal to the United States Supreme Court was then filed by the companies affected.

## Washington to Reduce Street Lighting Rates

Street lighting rates for approximately 150 cities and towns in the state of Washington will be investigated by the Department of Public Works which has filed a formal complaint. Seventeen private power companies are named defendants in the complaint, which charges that the rates are discriminatory, excessive and burdensome. The first hearing will be held on Nov. 20 in Olympia.

Among the larger cities for which a reduction in street lighting rates is being sought are Walla Walla, Yakima, Bellingham, Bremerton, Everett, Kelso, Montesano, Mount Vernon, Olympia, Wenatchee, Spokane, Asotin, Clarkston, Vancouver and Puyallup. Director E. K. Murray, of the Department of Public Works, states that the investigation follows a survey of street lighting rates, which were found "sadly in conflict" in most cities.

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¶ **Seattle's** city council will be asked to endorse and finance a more modern system for traffic light control estimated to cost about $30,000 as the result of a study made by City Traffic Engineer J. W. A. Bollong. The program calls for replacement of signal lights now in the middle of street intersections by signals at the corners. The recommendation has been made that the city apply to PWA for help in financing the changeover.

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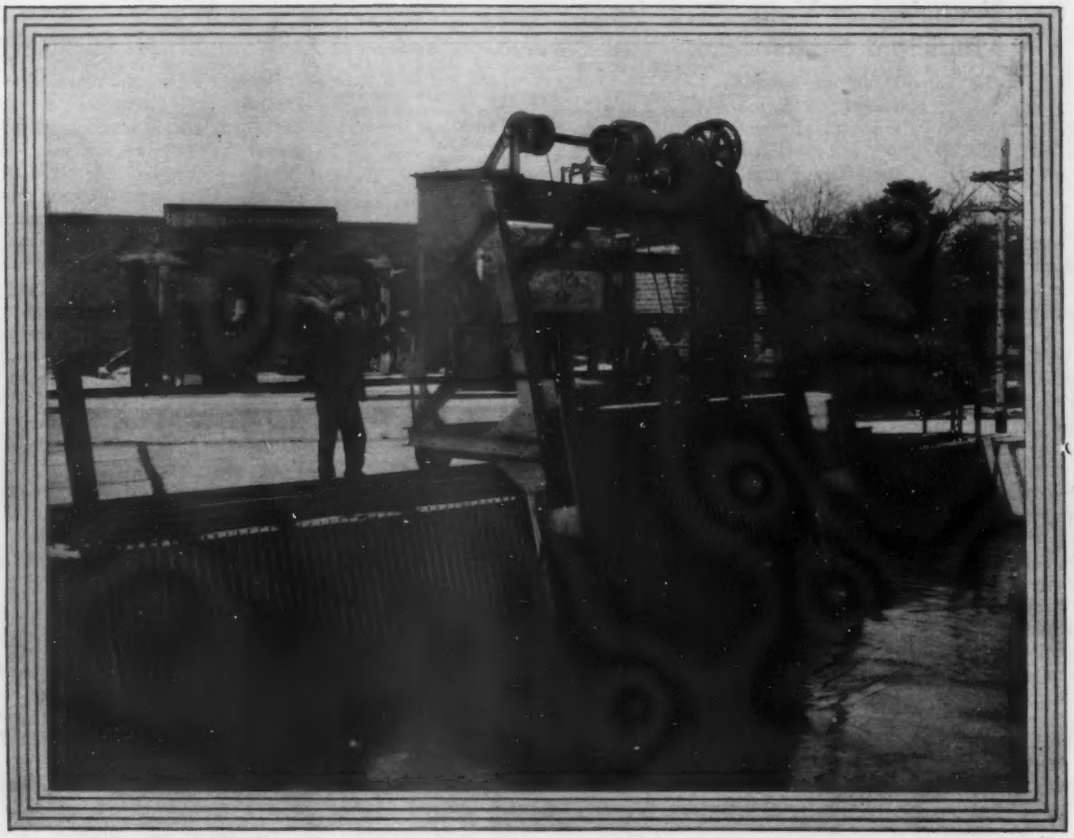
## *Welding Boulder Penstock Pipes*

ONE of the biggest jobs of electric welding in the world is being conducted at the field fabricating plant of the Babcock & Wilcox Co. at Boulder Dam where penstocks for the power house are bing produced. The plant is fully equipped to fabricate by fusion welding and to test by X-ray 14,500 ft. of pipe ranging from 8½ to 30 ft. in diameter made from steel plate ranging in thickness from ⅞ to 2¾ in. The view on the left shows the mounting of two pipes 8½ ft. in diameter on rolls under an automatic fusion-welding machine preparatory to welding a girth seam. The spider for holding the seam in alignment and constituting a backing member for the welding is mounted within the section. The center picture shows an automatic fusion-welding machine laying an inside or bottom bead in a seam of a pipe 8½ ft. in diameter. At the right is a view of an 8½-ft. pipe section mounted under the welding machine for the welding of a longitudinal seam.



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## Enjoin Spokane Utility Tax

Stating twenty reasons why the law is illegal and void, an injunction suit against the 3 per cent gross revenue occupation or license tax in the city of Spokane has been filed by the Washington Water Power Co. Discrimination is alleged in that the gas company, a competitor of the power company, is asked to pay a license tax of only 1 per cent of its gross earnings.

Arguments advanced by the company in support of its suit include: That the company is subject to control of the Department of Public Works and that the measure would be reflected in rates over which the city has no jurisdiction; that the tax is in violation of the constitution of the United States; that the city is invading a field of taxation barred to it by the new state occupational tax; that under the franchise granted the company by the city in 1894 a franchise fee of $2,500 is provided and that in addition thereto the power company pays city, state and county taxes, leaving no opening for the city to collect additional levies; that the ordinance is in violation of provisions of the state constitution and the public service act of 1929.

The Spokane ordinance is similar to one adopted by the city of Seattle in 1932 which has been upheld by the Washington Supreme Court and is now on appeal to the United States Supreme Court.

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## Los Angeles Buys Mono Basin Properties

Property, water rights and power plants of the Southern Sierras Power Co. in the Mono Basin and Owens Valley will be purchased by the Los Angeles Department of Water and Power for a total price of $6,740,000 as the result of the adoption of a resolution by the Board of Water and Power Commissioners. This move ends negotiations that have been carried on for a number of years. It is anticipated that the resolution will be approved by the Los Angeles City Council and Mayor Frank Shaw.

The properties to be acquired by the city include the Owens Gorge and Hillside Ranch, $2,580,000; Leevining and Mill Creek power plants and reservoirs, $1,930,000 and the Rush Creek power plant including the Cain Ranch, $2,230,000. Payment for the properties will extend over a period of time up to Nov. 1, 1935.

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¶**Voting to submit** to the people a $150,000 bond issue for erection of a municipal power plant, the city of Bellingham is acting in opposition to the report of R. H. Thomson, consulting engineer of Seattle, who investigated the project. The analysis of Mr. Thomson showed that it would cost the city approximately as much to operate its plant as it pays out now for electric power for municipal purposes. The project involves the construction of a hydro-electric plant using water from Lake Whatcom. Mr. Thomson in his report declared that this water might be needed for domestic purposes in the future and would be worth much more to the city then than its use now for generating power.

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## Rural Short Course Set for Dec. 4-6

With a corps of 25 speakers, the annual short course in agricultural engineering of the University of California College of Agriculture will be held at Davis Dec. 4, 5 and 6. An extensive curriculum covering many phases of rural electrification has been prepared for the course.

Subjects to be covered Dec. 4 include irrigation by sprinkling, apple and pear washers, fruit juice sterilization, the use of water for cooling milk, and unusual uses of electricity on the farm. On Dec. 5 subjects to be discussed are effect of heating soil upon raising flowers, greenhouse heating with electricity, field experiences with soil heating installations, air conditioning and air conditioning equipment for farm homes, diesel engines for driving irrigation pumps and electric sterilization of soil. On Dec. 6 discussions will include building materials for homemade farm equipment, ensilage cutting and silo filling with electric motors, sweet potato curing studies, electric thermostats and latest developments in electric insect traps.

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¶**A. L. Pollard**, assistant general superintendent of light and power, Puget Sound Power & Light Co., has been elected president of the Seattle Electric Club, succeeding W. A. Thies, of the Pacific Telephone & Telegraph Co., who had held the position for two years. Other officers of the club named at a recent election include: Stanley Harrison, Westinghouse Electric & Mfg. Co., first vice-president; R. D. Hyneman, second vice-president; L. A. Burque, Westinghouse Electric & Mfg. Co., treasurer and C. W. Allison, secretary. Trustees include: Roy Grant, Puget Sound Power & Light Co.; W. A. Thies; M. P. Hotelling, electrical inspector, Seattle Building Department; Norman L. Bost, National Electrical Products Corp. and Grover C. Burke, City Electric & Fixture Co.

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¶**Efforts** of the city of Seattle to secure a $26,500,000 loan from the federal PWA to complete the Skagit hydro-electric project are being continued. A telegram signed by United States Senators Dill and Bone, of Washington, has been sent to President Roosevelt endorsing the city's application. J. D. Ross, superintendent of the City Light Department, has been in Washington for several months endeavoring to hasten the appropriation.

## Boulder Generator Contracts Awarded

Contracts for four Boulder Dam generators, which will be the largest in the world both electrically and physically, have been awarded by the United States Bureau of Reclamation. Two of the units will be built by the General Electric Co. at its Schenectady plant and two by the Westinghouse Electric & Mfg. Co. Contract for one 40,000-kva. generator was awarded to Allis-Chalmers Mfg. Co.

Design and construction details of the first two units to go into operation, which will be leased to and operated by the city of Los Angeles, have been announced by the General Electric Co. The generators are rated at 82,500 kva., unity power factor, three-phase, and are designed for 50-cycle generation at 150 r.p.m. and 13,800 volts or 60-cycle generation at 180 r.p.m. and 16,500 volts. These units exceed in capacity any other generator now in operation. Other large generators include the U.S.R.R. 77,500-kva. machines at Dneiperstroy, Niagara Falls 65,000 kva., Ariel 56,250 kva., Spier Falls 47,000 kva. and Conowingo 40,000 kva.

The Boulder Dam generators will be smaller in diameter but both higher and heavier than the U.S.R.R. generators. The two to be constructed now by the General Electric Co. will have an over-all diameter of 40 ft. and a height of 32 ft. above floor level. Each will weigh more than 2,000,000 lb. The rotor, including its 115,000-lb., 38-in. diameter shaft, will weigh 1,250,000 lb. The frame will be shipped in four sections. The waterwheels driving the generators will operate 90 per cent of the time with a head of from 450 to 560 ft., with minimum and maximum limits of 420 and 590 ft.

Because of special problems encountered in the transmission of power over a distance of 265 miles to Los Angeles, special features of design will be incorporated in the units, making them equivalent in size to generators of approximately 125,000-kva. capacity in units of normal characteristics.

Two of the 82,500-kva. generators will normally be operated in parallel and will be connected to one bank of step-up transformers, consisting of three 55,000-kva., single-phase units connected delta on the low-voltage side and star on the high-voltage side. A 13,800/16,500-volt transfer bus will be provided so that a spare 82,500-kva. generator may be substituted for any other generator without dropping load, and the low-voltage switching equipment will have sufficient interrupting capacity to permit three main generators being connected to the transfer bus simultaneously. Transmission circuits will operate at 275,000 volts at the receiving end and from 280,000 to 303,000 volts at the sending end. The transmission distance is approximately 265 miles, and the lines will be sectionalized into three approximately equal sections by intermediate switching stations.

## Rocky Mountain States Start Business Drive

"Sales Rally" plans of the Rocky Mountain Electrical Association have leaped into synchronized action. No more are there sporadic, localized, individual selling efforts by electrical dealers, jobbers and utilities in Colorado, Wyoming and New Mexico. All personal, company and corporate activities along this line are definitely tied in with the general program which is headed up by Gaylord B. Buck, president elect of the R.M.E.A.

ElectriNews, the new publication to promote all phases of electrical advancement in the Rocky Mountain region, covered the tri state territory with 100,000 copies and is virtually assured as a permanent institution by support of all branches of the industry.

Preliminary organization for the "Give-Something-Electrical-For-Christmas" drive was completed, in most communities, early in October; and merchandising activities began to develop before Nov. 1. Women employees of electric concerns were being marshalled by Evelyn Dane, chairman of the Women's Committee, who plans a remarkable coordination of feminine "shock troops" with the general strategy outlined by the headquarters planning board.

Not only does the Sales Rally organization include every town and city in Colorado, Wyoming and New Mexico as coordinated units, but tri-state activities are, and will be, timed in unison with national advertising and national promotional movements, as well as government recovery activities.

Ten divisions form the foundation on which the Sales Rally superstructure arises: Electric Cookery; Domestic and Commercial Lighting; Women's Committee; Small Appliances; Refrigeration; Advertising; ElectriNews; Wiring and Power Sales, and Employe Tip-Bonus activities.

Administered through Rocky Mountain Electrical Association headquarters in Denver, where Electrical League of Colorado is the sponsoring agency, all elements are cohesive. Each chairman is in close touch with all developments under his supervision.

Mr. Buck, at a recent gathering of executive heads, said:

"If conditions improve, the Sales Rally will be the vehicle on which the electrical industry in this region will cart away newly released dollars. If the situation does not immediately improve, nevertheless we will benefit far more than if we have no Sales Rally."

George E. Lewis is managing director for the R.M.E.A. Through his office clears all details of this attack on decreased purchasing power and sales resistance. He announced, after a meeting of executive heads, October 23, that the "Give-Something-Electrical-For-Christmas" crusade, with every resource behind it, would be a "major offensive which will clear the way for a year-'round campaign."

Following the Yuletide activity, a handbook, outlining Sales Rally plans for 1934 will be ready for distribution among all participating members and companies.

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## G. B. Buck Heads Rocky Mountain Assn.

Gaylord B. Buck, general commercial manager of the Public Service Co. of Colorado, is the new president of the Rocky Mountain Electrical Assn. Contrary to precedent, Mr. Buck will take over his executive duties Jan. 1, 1934 instead of in July as previous executives of the association have done.

Mr. Buck's entire career in the electrical industry has been with utilities

G. B. BUCK

operated by City Service Co. In 1909 he became connected with the Citizens Gas & Electric Co. in Mount Vernon, Ill., his birth-place. Experience with that company included positions in the operating, accounting and sales departments. In 1915 he was transferred to the City Light & Water Co. at Amarillo, Tex., as sales manager. From there he went in 1917 to the Durham, N. C., Public Service Co. and functioned there as sales manager for seven years. He came to Denver as general commercial manager of the Public Service Co. of Colorado in 1924.

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¶**Oakland Electric Club** started its fall season, holding meetings at the Capri Restaurant, 510 Seventeenth St., Oakland. Some months ago this club adopted an informal schedule with speakers when available, members coming and going as they pleased, but meeting for fellowship nevertheless. H. A. Knudsen, East Bay Municipal Water District engineer, is president of the club.

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¶C. W. Koiner, manager of the Redondo Beach district of the Southern California Edison Co., Ltd., has been appointed city manager of Pasadena. Mr. Koiner previously served the city of Pasadena as manager of the Municipal Light & Power Department for many years, beginning March 1, 1908. He served as first city manager in Pasadena from May 2, 1921 until he resigned on July 1, 1925. He engaged in private engineering work for a time and became manager of the Edison company's Redondo Beach district on May 2, 1927. Before coming to California, he operated electric plants in Maryland, Florida, New York, Kansas and Texas.

▼

¶**Construction** of a 4,600-hp. plant in the town of Bridge River on Seton Lake, B. C., and erection of a 50-mile transmission line is being undertaken by the B. C. Electric Railway Co., Ltd. Work is to be undertaken immediately and the project will be finished by midsummer, 1934. The plant will use the 2½-mile tunnel constructed in connection with the company's projected 600,000-hp. plant on Seton Lake.

▼

¶**Rate and valuation** hearings of the Northwestern Electric Co., Portland, were carried on during October before the public utilities commissioner. Testimony at the hearings covered substantiation of the figures submitted by the company in its inventory and appraisal filed with the commission last July.


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# Market Review

**California and Intermountain—**

General business in this territory is reported to be gaining slowly but prospects seem to be much brighter than the actual volume of orders would indicate. Healthful signs are the general upward trend of power output and the reports that the larger industrials are again in the market for electrical supplies and equipment. Mining, active during the past few months, is expected to increase due to the President's policy of gold purchases announced the latter part of the month. Schedule material and supplies are reported to be moving briskly, evidently responding to the PWA program and industrial buying. With the exception of breweries, private construction is confined largely to renovations and improvements with very few factories or additions in sight at present.

The appliance business is reported to be slowing down slightly but sales are expected to respond to the Christmas buying campaigns that are planned by wholesalers and dealers with the cooperation of utilities and manufacturers. Rising prices are also expected to increase the volume of appliance business.

Noteworthy projects announced during the month include a $3,200,000 apartment house project for San Francisco, the completion of plans for the $2,300,000 Federal building in that city, the allotment of $4,600,000 for buildings and improvements at California army posts, a $100,000 addition to the Chrysler Motor Corp., at Los Angeles, a $100,000 cement plant for Stockton which is part of a $1,000,000 expansion program planned by a large cement company, a Coast Guard Station at Pt. Arguello costing $800,000 and breweries for San Francisco, Fresno, and Stockton aggregating expenditures of over $1,000,000 in addition to the $250,000 reconstruction work now in progress at the Milwaukee Brewery of San Francisco.

**Pacific Northwest—**

In this territory there are signs of a slight slowing up of business which is expected at this time of year. Prices are fairly stable with upward tendencies. Central stations are still buying only the barest of necessities and those, only after careful study. While business is better for both the railroads and street railway systems, there are no prospects of important business from these sources until definite improvement in the financial situation is made. Building is practically at a standstill with the exception of those projects being given Federal aid. Of the latter, the Bonneville and Grand Coulee water power projects are the largest and the ones which are largely responsible for the cautious attitude of the private companies in this territory.

Vacuum cleaners and home laundry equipment has helped the appliance business with range sales holding fairly steady. Appliances of the smaller type seem to be drawing renewed interest in the expectancy of a better holiday season than last year.

▼ ▼ ▼

# Barometer

With a 4 per cent rise from August the general average of industrial activity in the Western states approached close to the peak recorded last July and overshot the rate of operations a year ago by 21 per cent. The comparisons are based on reports of electrical energy consumption in identical plants grouped by industries, and take into account differences in number of working days in the various months.

In contrast with the relative stability of such as the food and chemical industries, which held up well even during the period of greatest general stagnation and which have consequently shown only moderate gains, is the pronounced progress toward recovery in the metals, lumber and stone industries. These latter are directly affected by fluctuations in the amount of construction work going on.

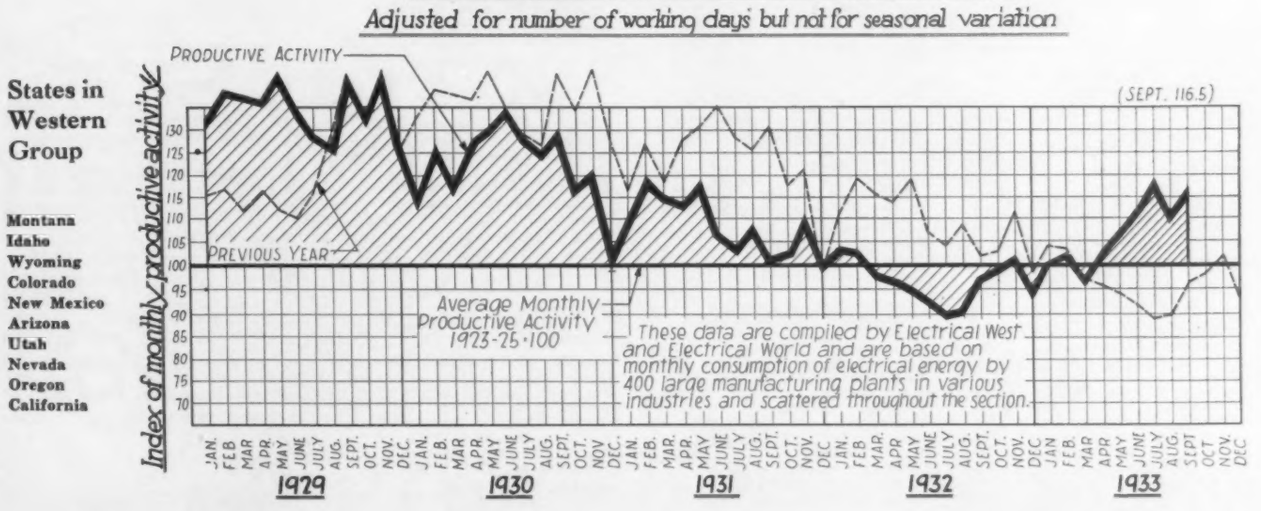
Their steady and very decided progress is therefore of broad significance. The year's rise in the first named is again 100 per cent; in forest products 36 per cent and in the stone, clay and glass category about 50 per cent.

### Indexes of Manufacturing Activity in the Western States

(All figures adjusted for number of working days)

| | Sept. 1933 | Aug. 1933 | July 1933 | June 1933 | Sept. 1932 |
|---|---|---|---|---|---|
| All industry | 116.5 | 111.7* | 118.3 | 111.6 | 96.0 |
| Chemicals | 85.0 | 80.0 | 87.5 | 74.7 | 84.2 |
| Food | 119.3 | 115.8 | 132.2 | 126.0 | 120.0 |
| Metals | 76.2 | 71.4 | 70.3 | 62.2 | 38.4 |
| Lumber | 165.0 | 154.5* | 156.0 | 154.0 | 121.2 |
| Paper | 138.2 | 134.0 | 150.3 | 159.7 | 135.4 |
| Rubber | 97.0 | 108.7 | 125.3 | 106.0 | 84.5 |
| Shipbuilding | 113.0 | 117.2 | 113.6 | 107.2 | 108.0 |
| Stone | 121.0 | 116.0 | 118.0 | 107.8 | 81.3 |

*Revision



# WHERE TO BUY IT IN THE WEST

**This guide to products supplements The Manufacturers' Directory, published in the April, 1933 issue. Under the name of the appliance or equipment will be listed the advertisers of that product; by cross-checking with the listings in the directory, the local agents for any item thus can be found. If further information is desired, write to ELECTRICAL WEST, 883 Mission St., San Francisco, Calif. While the same care has been exercised in compiling this guide as in the directory, the publishers assume no responsibility for errors or omissions, but will make such corrections and additions as are requested within the restrictions set.**

**Air Conditioning**
Frigidaire Corp.
Graybar Elec. Co., Inc.

**Anchors, Guy**
James R. Kearney Corp.

**Appliances, Household**
Apex Rotarex Mfg. Co.
Chicago Flexible Shaft Co.
Easy Washing Machine Corp.
Edison Gen. Elec. Appliance Co., Inc.
General Elec. Co.
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
The Gute Co., Ltd.
Malleable Iron Range Co.
Mary Dowd Reardon Studios Ltd.
One Minute Washer Co.
Panama Lamp & Com'l Co.
Swartzbaugh Mfg. Co.
Westinghouse Elec. Supply Co.

**Bakelite**
Electrical Specialty Co. of So. Calif.

**Batteries, Storage**
Elec. Storage Battery Co.

**Boxes**
General Cable Corp.
Russell & Stoll Co.
Thomas & Betts Co.

**Brackets, Wood**
Locust Pin Co.

**Bus Fittings**
Burndy Eng'g Co.

**Cable Accessories**
General Cable Corp.
John A. Roebling's Sons Co.

**Cables**
General Cable Corp.
General Elec. Co.
Graybar Elec. Co., Inc.
John A. Roebling's Sons Co.
Westinghouse Elec. & Mfg. Co.

**Carbon Brushes**
Morganite Brush Co.

**Central Station Equipment**
Tom Wood

**Chimes**
Diamond Elec. Mfg. Co.

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General Elec. Co.
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Clements Mfg. Co.
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General Elec. Co.
Westinghouse Elec. & Mfg. Co.

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Steel & Tubes, Inc.
Youngstown Sheet & Tube Co.

**Conduit, Underground**
Fire Proof Wall Co.
Johns-Manville Corp.

**Connectors**
Burndy Eng'g Co.
Electroline Co.
James R. Kearney Corp.

**Cutouts**
James R. Kearney Corp.
Westinghouse Elec. & Mfg. Co.

**Distribution Specialties**
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James R. Kearney Corp.
W. N. Matthews Corp.
Maydwell & Hartzell, Inc.
Waltham, DeWitt & Krusi

**Electrodes, Arc Welding**
John A. Roebling's Sons Co.

**Fans**
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

**Farm Electrification Equipment**
Rural Elec. Products Co.

**Fittings, Conduit**
Steel & Tubes, Inc.

**Fixtures, Lighting**
Russell & Stoll Co.
Thomas & Betts Co.

**Floodlighting**
S & M Lamp Co., Inc.

**Gasoline**
Associated Oil Co.

**Generators**
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General Elec. Co.
Westinghouse Elec. & Mfg. Co.

**Heaters, Air**
Edison Gen. Elec. Appliance Co.
Montgomery Bros.
Sandoval Sales Co.
Thermador Elec'l Mfg. Co.
Wesix Inc.
Westinghouse Elec. & Mfg. Co.
Edw. L. Wiegand Co.

**Heaters, Water**
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Malleable Iron Range Co.
Red Spot Elec. Co.
Sandoval Sales Co.
Thermador Elec'l Mfg. Co.
Wesix Inc.
Westinghouse Elec. & Mfg. Co.

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**Illuminating Glassware**
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Elec'l Eng'g Sales Co.
General Elec. Co.
Quality Elec. Co.
Roller-Smith Co.
Westinghouse Elec. & Mfg. Co.

**Insulation**
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C. D. LaMoree

**Insulators**
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Graybar Elec. Co., Inc.
Hemingray Glass Co.
Illinois Elec. Porcelain Co.
Locke Insulator Corp.
McLaughlin Glass Co.
Owens-Illinois Glass Co.
Westinghouse Elec. & Mfg. Co.

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Easy Washing Machine Corp.
Ironite Ironer Co.
Mary Dowd Reardon Studios

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Westinghouse Lamp Co.

**Lamps, Vapor**
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Keese Eng'g Co.

**Lamps, Sun**
General Elec. Co.

**Lighting Equipment**
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Wuelker Reflector Lighting Corp.

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General Elec. Co.
Westinghouse Elec. & Mfg. Co.

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General Elec. Co.
Westinghouse Elec. & Mfg. Co.

**Oil, Lubricating**
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**Oil, Transformer & Switch**
Associated Oil Co.

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Westinghouse Elec. & Mfg. Co.

**Pins, Wood**
Locust Pin Co.

**Pole Line Hardware**
Associated Wholesale Elec. Co.
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Graybar Electric Co., Inc.
Hubbard & Company
Joslyn Co. of Calif.
Locke Insulator Corp.
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**Public Address Systems**
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Waltham, DeWitt & Krusi

**Public Utilities**
Coast Counties Gas & Elec. Co.
Pacific Gas and Elec. Co.
San Diego Cons. Gas & Elec. Co.
San Joaquin Light & Power Corp.
Southern Calif. Edison Co. Ltd.
Southern Sierras Power Co.

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**Range Units**
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Edwin L. Wiegand Co.

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General Elec. Supply Corp.
Malleable Iron Range Co.
Standard Elec. Stove Co.
Westinghouse Elec. & Mfg. Co.

**Refrigerators**
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General Elec. Co.
General Elec. Supply Corp.
Graybar Elec. Co., Inc.
Malleable Iron Range Co.
Westinghouse Elec. & Mfg. Co.

**Relays**
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**Resistors**
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Westinghouse Elec. & Mfg. Co.

**Rheostats**
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Elec'l Testing Labs.
McGraw-Hill Book Co.
National Elec. Cookery Council
Neal, Stratford & Kerr
Northwest Elec. Light & Power Association
Pacific Coast Elec'l Ass'n
Pacific Coast Elec'l Bureau
Young's Adv. Agency

**Signs, High Voltage**
W. D. Howze Sales Co.

**Steel Products**
Pacific Coast Steel Corp.

**Switchboards**
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Diamond Elec. Mfg. Co.

**Switches, High Tension**
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James R. Kearney Corp.
General Elec. Co.
W. W. Kirk
C. D. La Moree
Pacific Elec. Mfg. Co.
Westinghouse Elec. & Mfg. Co.

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Meter Devices Co.

**Switches—Pressure and Temperature**
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**Switches, Safety**
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Meyers Safety Switch Co., Inc.
Mongerson's Elec'l Mach. Works.
Parker Elec'l Mfg. Corp.

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Tork Clocks, Inc.

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Delta-Star Elec. Co.
General Elec. Co.
Westinghouse Elec. & Mfg. Co.

**Tapes**
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**Terminals, Cable**
General Cable Corp.

**Tools, Live Line**
James R. Kearney Corp.

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Pacific Coast Steel Corp.

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Electric Agencies
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Jeffries Transformer Co.
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Western Transformer Co.
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C. E. Ingalls (Copperweld).
John A. Roebling's Sons Co.
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Russell & Stoll Co.
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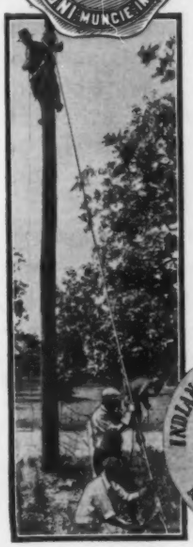
ECONOMIZE with safety by using *Crapo* Galvanized Steel Strand and Wire on all new and replacement jobs.

The heavy, pure zinc coating, thoroughly bonded to the wire, resists corrosion, increases durability and substantially lowers maintenance costs.

Be sure to specify genuine *Crapo* Galvanized Products! Representative Jobbers in all principal jobbing centers are ready to supply you on instant notice.



**Indiana Steel & Wire Company**
**Muncie, Ind.**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THE POWER COMPANY IN THIS TOWN IS MODERNIZING OLD RANGES WITH CHROMALOX SUPER-SPEED "TOP BURNERS"
LET'S SCRAM, OILY! - WE'D ONLY BE WASTING OUR TIME - THE POWER COMPANY IN THIS TOWN IS WIDE AWAKE!
COMPETITIVE FUELS

That's what a Chromalox campaign is — a detour sign to salesmen of all other cooking fuels. It tells them you are re-building customer satisfaction in electric cookery . . . modernizing old ranges with Chromalox *Super-Speed* Replacement Range Units . . . holding on to every single cooking customer.

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Try this and see: Pick out a few customers with out-dated ranges. Send a salesman with a screw driver and a Chromalox *Super-Speed* unit to replace the old units with new ones. A single Chromalox unit will do more selling than any salesman. It not only will sell itself, but it will sell all the other units too. And it will re-sell the customers on electric cookery and electric speed.

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1. Saved the cooking load; 2. Protected capital investment; 3. Made old range owners satisfied range users; 4. Built load by increasing use; 5. Made new range sales easier.

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## *Enlist the Owners*

WHO owns the power companies? In the answer to this question may lie the antidote for the scourge of oppression, tax gouging, subsidized competition and political attack which besets the utilities today. Certainly the companies are not owned by the thousands of workers whose daily task it is to provide electrical service. Equally certain is the fact that the companies are not owned by the managers. They are simply the trustees for the real owners.

Who, then, does own the companies? They are the hundred of thousands of individuals—housewives, teachers, bankers, grocers, bakers, laborers, a cross section of every community, whose savings are directly or indirectly invested in the stocks and bonds of the companies. It is high time that these people were awakened to their present dilemma, for they, not the power companies, are on the spot. As trustees for this large and unorganized group, the managers of the utilities will be remiss in their duty if they do not inform these security holders of the jeopardy of the continuation of today's campaign of taxation, oppression and competition.

Aroused public opinion is a powerful weapon and one which politicians thoroughly understand and fear. An organized group of security holders, indignant over past abuses and determined to have an accounting for political policies which menace their holdings by taxing them to provide the means for destroying them, would be a real force in any community or commonwealth. Plain talk of the character which induced these people to invest in the utilities in the first place should bring aggressive action from security holders' groups which will stop or at least modify the campaign of oppression to which the power companies are being subjected.

▼

## *Plans for 1934*

MANY are the business men who have wished for a magic crystal that would give some indication of the prospects for 1934. Today is not too soon for the electrical industry to begin its planning for that momentous year—for such it promises to be, what with fundamental changes in the concepts of business and political conduct now in the development stage.

What to do next year? The answer seems to be a return to good old-fashioned, bare-armed selling. Sales plans of utilities, of manufacturers and of distributors for next year are now in the making. If the gages read correctly, we may expect intensified sales promotion and the development of a higher order of salesmanship. Certainly this holds true of the power companies. Tired of waiting for an imaginary "upturn", harassed by competition and gouged by increased taxes, they appear determined to offset decreased revenues and increased tax burdens with a drive for new business.

Southern California Edison Company already has announced its concentrated, coordinated, cooperative program, starting in November so that there will be no lost motion as the new year opens. Other companies are laying similar plans. In the Pacific Northwest refrigeration and cookery councils are working and planning.

These are good omens. The industry as a whole will welcome sales leadership from the utilities. There has been too much inactivity and general lack of direction toward tangible goals in the past two years. Let every branch of the industry determine now that it will have planned selling for 1934, selling that is coordinated with the plans of other branches and other units in the business. We may not be able to talk, or argue, or legislate ourselves out of the valley of decreased business, but there is every reason to believe that we can sell our way out.

▼

## *Working in Harness*

MEN are inventive creatures. Often they take far more interest in creating and building a machine than in what will come out of it later, how it will operate. And to settle down to the routine of operating it is mighty important though very unromantic. Thus the NRA machinery, which everyone was so anxious to create and build, must settle down to the drudgery of detailed operation. It needs patient, conscientious operation, careful adjustment. This is no time to get mad because it doesn't operate perfectly and break the new machine. Give it a fair start.

the New ELECTRICAL WEST

*Established 1887*

With which is consolidated "Journal of Electricity"
Published Monthly at 883 Mission St., San Francisco,
by the McGraw-Hill Company of California.

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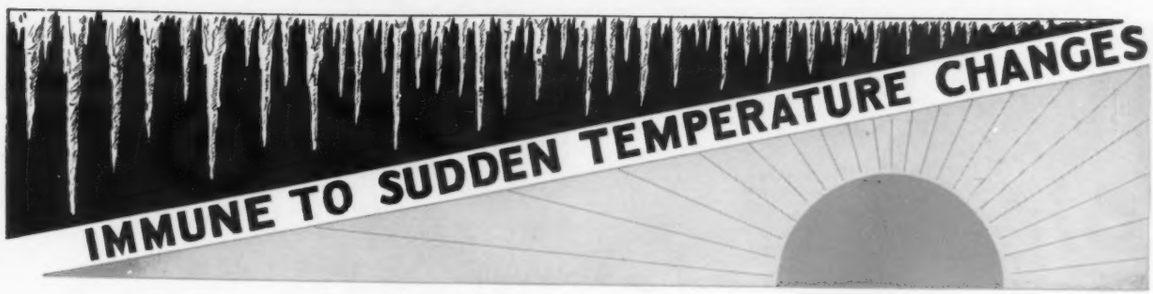


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AVAILABLE IN EITHER BROWN OR LIGHT GREEN COLOR

More and more Hemingray Insulators are being installed as users find that the tougher glass from which they are now made brings greater economy.

The new line of Hemingray pin type glass insulators can pass a more severe temperature change test than they ever will get in actual service.

Hemingray Insulators offer the utmost in economical distribution insulator service. The new designs have heavier side walls and thicker petticoats. Their balanced strength makes them resistant to damage from careless handling or ordinary impact.

Write for sample insulators. Test them for both electrical and mechanical strength. Modern styles available for every power distribution need are shown in our bulletin—send for it.

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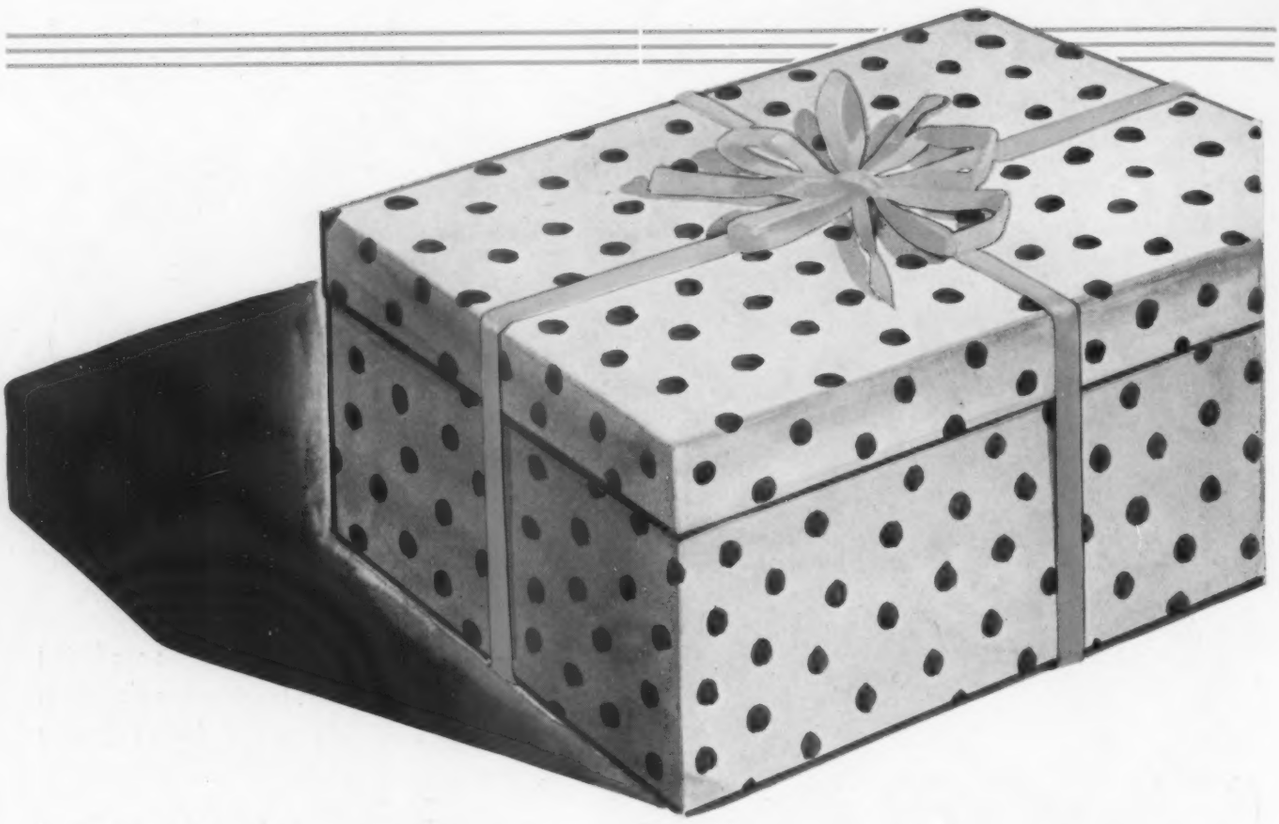
OWENS-ILLINOIS GLASS COMPANY, MUNCIE, INDIANA

# Open *this* present *before* Christmas!



THE Pacific Coast Electrical Bureau is making you a Christmas gift that will bring a lot of business to you — *if you make use of it right away!*

This month and next the Bureau is sending thousands of messages into the homes in your locality. Magazine and farm paper advertisements featuring outdoor Christmas lighting—suggesting novel, effective uses of lights as an important part of holiday decoration. A story written to appeal to every family.

This advertising campaign is going to help you put over outdoor Christmas lighting in your community on a bigger scale than ever before. It helps you sell outlets, wiring, sockets, switches, colored lamps, flood lights—*at the time of year when sales resistance is lowest!*

Stir up some action! Get Christmas lighting contests going. Start profitable neighborhood rivalry. Your local newspaper can be shown the value of devoting space to news about outdoor lighting. Put in bright window displays on holiday electrical supplies. Send salesmen to cover your district from door to door. Smart merchandising methods will finish up your year with some nice extra profits!

Write the Pacific Coast Electrical Bureau for ideas, methods, pointers. The experience and knowledge of the entire electrical industry is available to you without charge through this Bureau.

PACIFIC COAST ELECTRICAL BUREAU

447 Sutter St., San Francisco  601 W. 5th St., Los Angeles
848 Roosevelt St., Fresno